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JOURNAL OF THE ASSOCIATION FOR SUPERVISION AND CURRICULUM DEVELOPMENT, NEA

THEME:
Grouping: Promising Approaches

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Grouping: Promising Approaches

Articles

On the theme

Grouping: Research Offers Leads — *Fred T. Wilhelms* and *Dorothy Westby-Gibson* — 410
Grouping Students in Junior High School — *John R. Cochran* — 414
Classroom Grouping for Effective Learning — *Louise E. Hock* — 420
Grouping Is the Function and Process of Content — *Jeannette Veatch* — 425
Grouping: What Have We Learned? — *Maurice J. Eash* — 429

In general

Creative Supervision — *Dorothy S. Cowles* — 435
Crowding in the Schools: 1954 to 1961 — *Robert H. Anderson* — 438
Enriched Mathematics for Gifted Junior High School Students — *A. Harry Passow, Miriam L. Goldberg* and *Frances R. Link* — 442
Migration Provides Leads for Curriculum Planning — *Galen Saylor* — 449

Departments

The Importance of People — *Prudence Bostwick* *Mary Harbage* — 453
Curriculum Developments — *Arthur Hoppe* — 461
Significant Books — *Elizabeth Z. Howard* *Mark M. Krug, Frederick F. Lighthall* *Roy R. Wilson* — 469

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Fred T. Wilhelms
and Dorothy Westby-Gibson

Grouping: Research Offers Leads

We must find the unique individual without submerging him in a type.

IF, in education today, there is a less comfortable topic to write about, we do not know what it is. A host of lay citizens, academicians in general, and many teachers and administrators—including excellent ones—put tremendous faith in grouping as the way out. The common-sense view scarcely pauses to question that the thing to do is to separate the able, the average, and the less able. It assumes that this can be done accurately and easily. And it simply does not doubt that the ablest group, thus "set free," will rise to unprecedented heights. Interest is keen.[1] The grouping movement, which boomed in the 'Twenties and early 'Thirties and dwindled in the next decade, has risen strikingly again, so that samplings show a high proportion of schools grouping extensively or planning to.

In the face of all this bright hopefulness, the reporter's role is a sorry one. For he has to report that, by and large, the research evidence is disappointing.

Since so much of the area is foggy and uncertain, maybe the best place to start is with the one thing we know most about: the simple A, B, C sectioning of elementary grades and secondary courses. Detroit started this around 1921, and hundreds of schools followed suit. This was just after the Army's impressive World War I use of classification testing had given the testing movement an exciting impetus. The fascinating new concepts of I.Q. and M.A. seemed to offer a handy norm for each child, to predict what he should do in reading, arithmetic, or whatever—a ready-made device for classifying.

That first fine faith in the I.Q. soon dwindled. Yet other measures kept coming along, measures of achievement, of special aptitudes, etc. There was still faith that some classifying index based on just the right combination of measures could be found. As time went on the base was broadened. Reading scores were often weighted heavily. Previous grades and attitudes and work habits were considered, and teachers' judgments got added attention. It has been a long and ingenious search for the best ways of classifying pupils into "homogeneous" groups.

[1] In the three years following June 1950, *Education Index* listed 25 articles; in the three years ending in June 1960, it listed 115.

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What Are the Findings?

From the beginning the movement encountered disagreement, even violent opposition. Much of the great volume of publication was philosophical and speculative, or mere opinion. But there were also hundreds of quantified studies, many of them crude, but some refined and methodical. Nearly always they used pre- and post-measures of subject-matter gain to compare "homogeneous" and "heterogeneous" situations.

The evidence has varied. Its mass is so enormous that evaluation is difficult. Reviewing the accumulated findings, various investigators have come to slightly differing positions. Our own interpretation is that the data will support these conclusions:

1. There is no evidence that ability grouping, taken by itself, leads to improved mastery of subject matter.

2. Even if we take the most favorable position, which some investigators hold, that there is a slight balance of evidence in favor of ability grouping, the difference is minuscule and bears no relation whatever to the optimistic popular expectation of a signal change.

3. Again, even if we posit the greatest advantage from grouping that the data could possibly support, that advantage has rarely gone to the ablest group, on whose behalf the current movement is largely sponsored. The anticipated sharp rise of the high group as soon as it was "set free" has generally failed to appear.

4. If any one group has at all consistently gained from grouping it has been the low group. There is also substantial evidence that special programs for the mentally retarded are beneficial.

5. Teachers have tended to see grouping as somewhat easing their problems of instruction—a perception not to be taken lightly.

Another line of investigation entered in. The search had been for "homogeneity," and it was the narrowing of range which the teachers especially desired; to what extent was it actually being achieved? Here the results were so disillusioning that they have rarely been accepted by any but the sophisticated. One investigator after another has uncovered roughly the same facts: Suppose we take a total population of children at any grade level; record for each not only his I.Q. and M.A. but also data on, say, eight or ten other variables—reading speed and comprehension, arithmetic reasoning and computation, and so on. Now divide these children into three levels *by any criterion or combination index you care to choose* (which can be done "on paper," without actually moving children). How much will you reduce the total variability within each group? by two thirds? by half? No, you will be lucky if you reduce it by one-fifth. The layman and the unsophisticated teacher may—and do—continue to think of each subgroup as "homogeneous"; the expert knows it is still rampantly heterogeneous, concealing tremendous ranges on all but the one variable chosen as the basis for division.

Cook may have revealed the reason why this is inevitably true when he showed that any child is likely to vary about four-fifths as widely among his own traits as the group he is in will spread over any one variable. The group cannot be homogeneous because the individuals in it are not "homogeneous" within themselves.

We believe the evidence on this line is solid enough to back up these conclusions:

1. The supposed homogeneity of the

subgroups is a myth, even though the ranges of differences have been reduced somewhat. (This does not apply at all equally to groupings *by subjects,* though it offers a warning even there.)

2. The myth can be a dangerous one, leading teachers to impose a stereotype upon a group and, by teaching to an assumed *type,* make *less* provision for the unique individuals than they would in classes they knew to be heterogeneous.

Well, here we are with two discouraging but undeniable findings about old-style A, B, C grouping:

1. It does not produce anywhere nearly the hoped-for homogeneity.

2. All theoretical arguments aside, it does not produce more than microscopic improvements, if those, in subject-matter mastery.

There Are Some Leads

Where shall we turn, then? We cannot just be "against grouping." Schools have to divide up their students in *some* rational way, and we are duty-bound to keep searching for ways that yield the best results. Successful or not, ability grouping tackled some real problems—problems that haunt every honest teacher who tries to fit instruction to each child, in groups that range across enormous diversity. Those problems have not gone away. What shall we do about them?

There are some "leads"—not *proved* perhaps, but enough for a sense of direction. They point toward moving past preoccupation with *types,* to go straight to the unique individual. To do it, they indicate jettisoning closed, rigid, formal stratifications and narrow subdivisions of people or subject matter, in favor of open, "roomy" arrangements with a premium on flexibility.

In view of the popular pressure, the key question may be whether we can stimulate the fullest development of the high-ability students—who are so precious a resource that they simply must be developed—without special sectioning. We believe we can. We have already shown that they tend not to profit from typical ability grouping. The better statement may be that, given reasonable opportunity, they do very well in a wide variety of situations. Abramson is following 192 of them through college. They are from four New York City high schools: one with no ability grouping, two with various grouping and honors plans, one a famous school which admits only the very able. Reporting on their college-sophomore performance, Abramson found "no significant differences." Their own ability level, not the programs they came from, was determining how well they did.

As England and Sweden are moving from highly stratified schools to a more comprehensive model, alert scholars are assessing results. They report that the most able group has a rare ability to "land on its feet" about equally well in all situations. It is the middle and especially the lower groups that show real differences.

Revealingly, these scholars focus little attention on innate ability. The old stratifications were largely on socioeconomic lines. The higher-status children do better, regardless of situation, because of a richer self-concept, superior goals, and a higher vision of what is good and possible. The learning of the lower-class children is crippled more by lacks in these areas than by lack of brains.

In America, too, ability-group lines have been shown to run very close to socioeconomic class lines. Efforts like New York City's "Higher Horizons" proj-

ect are trying to strike directly at the damages of cultural deprivation. Bettelheim protests that at the very moment when we are wiping out "white-color" segregation, we may be erecting a new "white-collar" segregation. He studied one special school for the gifted and concluded that the high-pressure forcing left these able children dependent on the teacher, without time for reflection, and indisposed to use their own critical judgment. Studying these children after they were shifted to unsegregated public schools, he felt they had more freedom for reflection and responded with greater spontaneity and creativity. His studied perceptions parallel a growing swell of worried comments from the field about motivation problems, etc., in some high-pressure programs for the most able.

The Unique Individual

All in all, it appears that we can meet this special problem in a superior way, without rigid grouping, *if we develop to the maximum our schools' resources for flexibly serving the individual.* Let's look at the resources we have.

A skilled, sensitive elementary teacher moves very close to each child. In reading and arithmetic he may have what amounts to small ability groupings, fairly stable yet flexible enough for interchange, the two clusterings differing somewhat because each is based on needs in its own area. After pupil-teacher planning in comprehensive social studies units, he develops differentiated tasks for committees in which diversity is often more to the purpose than homogeneity. In free reading and recreational activities, informal groups cluster about shared interests or friendship. All these subtly shifting groups bring each child into high visibility, to be worked with on his own terms. There is no flat stratification, no child always the star, no child forever derogated to himself; yet differences in ability and need are faced frankly, though gracefully, studied, and perceptively served.

Similarly, in a good high school, youngsters are helped to size themselves up, get acquainted with various possibilities, and choose what seems best for them. With perceptive guidance, some commit themselves to the rigorous sciences, mathematics, languages, and so on. Others realistically choose a milder climate, and instruction appropriate to their life style. Ways are left open for later changes. Well handled, this is the cornerstone of the comprehensive high school. Even if there is no ability sectioning at all, it already provides the framework for a noteworthy differentiation to meet diverse needs.

Now, how can we build upon the good resources these schools already offer? Anderson and Goodlad say a nongraded elementary school keeps things more open and more flexible to fit each child. Quite a few schools are trying it, or at least a nongraded primary. Some reading specialists are experimenting with individual reading programs. Team teaching is being explored. Guidance is gaining emphasis, with psychological assistance and refined diagnostic aids to help reveal special abilities or needs —and do it early.

High schools are making dramatic changes. Conant and others are pushing the expansion of individual diagnosis and guidance. Elaborate team teaching plans are being coupled with combinations of large- and small-group instruction. Social studies teachers and others are swinging from day-by-day lessons to comprehensive units, gaining time for

(Continued on page 476)

John R. Cochran

Grouping Students in Junior High School

. . . an evaluation of practice.

CRIES for improved education that were heard recently throughout the United States were heard also in Kalamazoo. Grouping arrangements, prescribed as a cure for educational ills in other places, also were tried in Kalamazoo.

During the spring of 1959, a committee was established with instructions to recommend a plan for grouping junior high school students. The committee's recommendation that a "flexible grouping" program be established was adopted by the Board of Education and put into practice in September 1959.

The flexible grouping program used in Kalamazoo may be described as follows:

1. The purpose of grouping would be to provide for individual differences among all students, not for the sole purpose of providing a program for gifted students.

2. Three group levels would be established in English and mathematics and two group levels in science.

3. Seventh grade students would be grouped in English and mathematics; eighth grade students in English, mathematics and science; and ninth grade students in English and science.

4. Broad and varied criteria would be used in the placement of students. Among these criteria would be intelligence test scores, achievement test scores and teachers' judgments regarding interest, motivation and need.

5. Flexibility in placement would be promoted by using total needs of students rather than a rigid criteria alone in determining the placement of students.

6. Students could be placed at one group level in one subject and at a different group level in another subject.

7. If the students' needs change during the year, students could be shifted from one group level to another.

8. Approximately 20 percent of the students would be in the more capable group, 60 percent would be in the average group and 20 percent would be in the less capable group.

9. The curriculum, materials, and teaching procedure would be different for and adapted to each group level.

10. A thorough and continuous evaluation of the grouping program would be undertaken.

As plans were being made to initiate the grouping program, plans were also being made to evaluate it. The plan of

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evaluation provided for four major studies during the first year; one related to teachers, one related to parents, one related to achievement test scores, and one related to the changes made in the placement of students.

Teachers and Grouping

Questionnaires were administered to all 144 of the junior high school teachers approximately six months after flexible grouping had been in operation. Ninety-six percent of the questionnaires were completed and returned.

Sixty-five percent of the teachers who were teaching grouped classes reported that they approved of grouping when it was first discussed. The percentage of those approving of grouping increased to 77 percent after the program had operated for six months. When the teachers of grouped classes were asked if they believed that there should be grouping, 86 percent reported, "Yes." Similar responses were given by teachers not assigned to grouped classes.

The comments of teachers clarified their reasons for believing that grouping should be continued. Typical comments were, "It is easier to teach." "It is a more effective manner of teaching." "All students have a chance to succeed." "Less able students feel more secure." "There is more challenge for the able students." Whether or not these comments were valid is questionable and to some degree immaterial. The important fact was that teachers believed them to be true and undoubtedly acted in terms of their beliefs.

Although the majority of teachers approved of grouping, they were not at all sure that grouping was of value to students. Increased achievement and interest were reported by teachers of more capable groups and teachers of seventh grade students, regardless of group level. Teachers of all other groups felt that neither achievement nor interest had markedly improved. Some of the teachers of more capable groups felt that students' attitudes toward themselves had improved, but a majority of teachers did not share that feeling. There was general agreement that grouping did little to improve the behavior of students or to improve students' attitudes toward others. Most teachers reported some improvement in their relationship with parents as a result of grouping.

Certainly these data were inconclusive and showed a need for more objective study. These reactions, however, suggested that efforts should be directed toward helping students develop reasonable attitudes toward both themselves and others regardless of group level.

While grouping did not greatly change students, it did seem to influence the procedures used by teachers. Nearly all teachers of less capable groups and many teachers of more capable groups reported that they had changed their teaching to a great extent, while teachers of average groups reported little change in their teaching. Major changes which took place were related to the use of a greater variety of printed materials and to the use of more audio-visual materials. In addition, increased use of community resources and of teacher-pupil planning was reported by teachers of more capable groups.

This major curriculum change seemed to lessen teachers' faith in their past practices. They worked diligently to find better materials and methods and to learn more about their students. Whether or not they will continue to search for new and better ideas is not known.

Relatively few of the teachers felt that they had been specifically prepared for teaching grouped classes. However, only the teachers of less capable groups seemed to be disturbed by this fact. Teachers of the less capable groups consistently reported that they felt inadequate. Their concern was reflected by the fact that only 47 percent of the teachers of less capable groups felt satisfied with their present assignments as compared with 96 percent of teachers of more capable groups who were satisfied with their assignments. Further, while 74 percent of all teachers desired future assignments with more capable groups, only 6 percent wished to have assignments with less capable groups. Finally, the only teachers who questioned the adequacy of materials, supplies, curriculum help, or in-service training, were teachers of less capable students.

For some teachers, being placed in charge of junior high school students who were below average in intelligence, below grade level in achievement and above normal in frustrations and in discipline problems was a frightening task. This strongly suggested that the assignment of teachers to less capable groups should be made with care, that class sizes should be reduced, that in-service training and every possible type of support should be provided.

Reactions of Parents

Two questionnaire studies were made involving the parents of junior high school students. The first questionnaire did not mention flexible grouping but was concerned with determining parents' judgments as to their children's attitudes toward school. The questionnaire was administered so that the returns could be tabulated by grade and group level. Two schools were included in the study and 958, or 64 percent, of the questionnaires were returned.

Parents reported that the interest of their children in English, reading, mathematics and science had increased during this year as compared with the past year. For some group and grade levels, as many as 70 percent of the parents reported an increase in interest. However, they also reported a high increase of interest in social studies, for which classes were not grouped. Further, regardless of subject or group level, a consistently high increase in interest was reported for seventh grade students. Although the data tended to support a belief that an increase in interest resulted from grouping, it appeared that additional data needed to be gathered to determine the degree to which other factors, such as a new school situation, influenced the results.

Many parents reported that their children had enjoyed more success in school this year. With the exception of eighth grade science, the percentage of parents reporting increased success was higher for the less capable groups than for the other groups. An improved attitude toward school was also consistently reported by the parents of less capable students. On the other hand, these same parents tended to hold that standards were too low and that too little homework was given. This evidence suggested that the provision of a different curriculum with different materials has increased the success and improved the attitude toward school of the less capable student. However, continued review of standards and homework and interpretation of program to parents seemed to be desirable.

A second study was made by send-

ing a questionnaire to all parents of junior high school students. This questionnaire was aimed at determining the degree to which parents approved of the idea of grouping. Questionnaires were returned by 1637 parents or approximately 50 percent of the population.

In reacting to three separate questions, 82 percent of the parents believed that students should be grouped according to ability, 64 percent believed they should be grouped according to interest and 68 percent believed they should be grouped according to achievement. At least 71 percent of the parents felt that grouping would create more interest in school, would foster desirable conduct, would improve the attitudes of students, would help them have increased success in school and would permit teachers to make school more challenging. However, only 53 percent of the parents believed students should be moved from one group level to another during the year. It was clear that a majority of these parents approved of grouping and believed that it would be helpful to their children.

Changing the Group Level

Need for a special study of the reassignment of students to different group levels seemed to be indicated. Counselors, who handled all group changes, were asked to provide data about all students who were referred to them for changes.

An analysis of the data indicated that, although the initial placement of students was quite accurate, teachers constantly evaluated the placement of students and recommended changes throughout the year. A majority of requests for change came from teachers and were for the English classes or for seventh grade students. Changes were recommended throughout the year but especially at the times that report cards were sent out. Sixty-five percent of all changes were from lower group levels to higher group levels. Inadequate or conflicting data were used in the initial placement of most students who were later changed.

Approximately 70 percent of all changes from one group level to another were judged to be successful and only 5 percent were judged to be failures. Both changes to a higher group or changes to a lower group met with equal success. While it was possible to make changes with success throughout the year, November or December seemed to be the best time.

Achievement Test Studies

The possibility of establishing a well defined and carefully controlled achievement test study was negated by the fact that all students had been placed in grouped classes. Consequently, while the method of study devised made it possible to decrease the effect of most extraneous factors, it was not possible to eliminate all of these.

The study can be described as follows. The control group entered the seventh grade during the 1957-58 school year, went through the seventh and eighth grades without being grouped, and was given an achievement test at the end of the eighth grade. The experimental group entered seventh grade during the 1958-59 school year, went through the seventh grade without being grouped, went through the eighth grade in the flexible grouping program and was given an achievement test at the end of the eighth grade. Students in the two groups had been paired on the basis of sex, chronological age, sixth grade achievement test scores and

intelligence. The major difference in the experiences of students was one year of grouping for the experimental group. It was assumed that any significant difference in achievement at the end of the eighth grade could be attributed to the grouping in the eighth grade.

About 10 percent of the total school population was selected for the experimental group by a random sample technique. The control group was selected by pairing students with those selected for the experimental group.

Test data were analyzed as to subject area, group level and each subtest of the achievement test. In English, spelling, paragraph meaning, word meaning and language subtests were analyzed for the more capable group, for the average group and for the less capable group. In mathematics, arithmetic reasoning and arithmetic computation subtests were analyzed for each of the three group levels. In science, paragraph meaning and arithmetic reasoning subtests were analyzed for each of two group levels. A total of 22 different comparisons of the data were made.

The significance of the difference between the scores obtained by the experimental and control group was investigated by using Fisher's "t." In only 3 of the 22 comparisons were significant differences found. In the more capable English group, the experimental group achieved scores that were significantly higher than the control group at the 5 percent level on the spelling subtest. In the more capable mathematics group, the experimental group achieved significantly higher scores than the control group at 1 percent level of significance on the arithmetic computation subtest and at a 5 percent level of significance on the arithmetic reasoning subtest.

Although the differences were not significant, the experimental classes scored higher on 10 other occasions and the control group scored higher on 9 occasions. It was interesting to note that in every test in English and arithmetic, the control group for less capable students outscored the experimental group for less capable students. It is also interesting to note that in science, the experimental group achieved higher scores than the control group regardless of test or group level.

This data tended to bear out the results of many other studies—that grouping increased achievement but not to any significant degree. On the other hand, this study did not support those studies which suggested that greatest achievement takes place in groups of less capable students.

Parents expressed a belief that assignment to any group level other than the one for more capable students tended to legislate against high achievement. In reality, data showed that 33 percent of the students in the average group in English scored higher than the mean score for the more capable group on the paragraph meaning test and 10 percent of the students in the less capable group scored higher than the mean score for the average group. In mathematics, 5 percent of the average group scored higher than the mean score for the more capable group on the arithmetic reasoning test. While none of the students in the less capable group scored higher than the mean score for the average group, 40 percent of the less capable students scored higher than lowest score in the average group. It is clear that assignment to a group level neither insured nor excluded high achievement.

Since one of the purposes of the flexible grouping program was to make it

possible to provide more adequately for individual differences, it seemed desirable to determine the degree to which individual differences were reduced. On the paragraph meaning test, the range of scores for all students at the end of the year extended over 9.2 years. For the more capable groups, the scores extended over 5.3 years; for the average groups, they extended over 7.6 years and for the less capable groups, the scores extended over 7.1 years. On the arithmetic reasoning test, the range of scores for all students at the end of the year extended over 8.2 years. For the more capable groups, the scores extended over 3.7 years; for the average groups, they extended over 6.8 years and for the less capable groups, the scores extended over 3.7 years. At the beginning of the year, the range of scores for any one group level did not exceed 3.2 years for either the arithmetic reasoning test or the paragraph meaning test. It is obvious that, while differences were reduced distinctly at the beginning of the year, the range of differences increased throughout the year.

The results of this study can be summarized simply. First, parents felt that flexible grouping helped their children and they approved the program. Second, teachers believed that flexible grouping did not make much difference, but they approved the program. Third, flexible grouping *did not* make much difference! As has been said about other studies, more issues were raised than settled.

Certainly no findings of national import or clear-cut bases for accepting or discarding the program appeared. However, the results of some studies and the comments made by participants suggested many things that might be done to improve the current program. Further effort needed to be made to reduce the pupil-teacher ratio in groups of less capable students, to avoid increasing the number of different group levels assigned to a teacher and to continue to assign students to groups carefully and individually. Attempts to provide materials, curriculum and teaching procedures in keeping with the needs of each group must be increased.

Continued emphasis should be placed on maintaining and increasing flexibility in the assignment of students to groups. Direct efforts should be aimed at helping less capable students feel worthwhile as individuals and at helping more capable students respect the worth of all individuals. A need to provide in-service experiences to help teachers increase their skill in working with less capable students, increase their skill in teaching reading and increase their skill in providing for individual differences was indicated. Finally, the study should be used as a basis for widespread local discussion to clarify the issues involved in grouping and to encourage further research.

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The question of grouping is a pervasive, continuing and insistent one. It covers a multitude of practices and points of view. The issues involved must be explored whenever school people have to make decisions regarding the grouping of students into classes, the grouping of courses into various track-curricula, the grouping of young people into small schools within a large school unit. Throughout educational practice, students are being grouped and regrouped, classified and reclassified, categorized and recategorized.

Similarly, within effective classrooms students are assembled and reassembled, sometimes as a total group of 30 or 35, sometimes into smaller groups of varying size, sometimes into teams of two or three. The particular focus of this article is on this flexible classroom grouping that makes for sound learning. It will deal with specific questions of the what, why, and how of small group work.

What Are Groups?

Whether we plan for it or not, we have grouping within our classrooms. There are the social groups—the cliques that develop their own mysterious cement of togetherness; the homework-sharing groups, with profit and benefit to members of the brotherhood; the interest groups that range from the statisticians of the baseball season to the squealing idolaters of the current Fabian, Darin, or Nelson of the popular musical world.

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Our adolescents turn to each other for purposes of their own—for social warmth, practical help, identification, assurance and reassurance in their world of change and growth. Youngsters group naturally and we should use this propensity to group living, no matter how ephemeral and vacillating it may seem at times. When we utilize this need of human beings to be drawn to other human beings, when we channel this need in worthwhile educational directions, we are capitalizing on one more of our reservoir of sound resources in an effort to improve the learning situation.

What are these educational groups we can form and should form? There is the "buzz" group—of short duration and immediate purpose. With these quickly formed groups of five or six, we can provide opportunities for rapid sharing of homework assignments, for exchange of ideas and experiences, for formulation of problems and questions, for discussion of controversy and differences.

Then there are the "job" groups, of short or long term duration. Some students can constitute a materials committee, whose function is to locate and arrange for the use of appropriate recordings, films, tapes, filmstrips, and other instructional materials pertinent to a particular unit of study. Or there might be a bulletin board committee, charged with the responsibility of maintaining attractive and informative displays of pictures, articles, original material, relevant to any subject of study or interest to a given class. Current events committees are another source of study and information for many classes in the social studies, science, and language arts fields.

A third type of grouping is represented by "work-study" committees, organized to facilitate deeper and broader exploration of various aspects of a problem or unit. These committees become involved with all the processes of sound research—planning, investigating, organizing, sharing, solving, and summarizing. A science class may have several committees researching the many peace-time uses of nuclear energy. Such a class will have a broader grasp of the role of nuclear energy in our daily lives and deeper insights into issues and implications than will a class that, with one eye and one voice, skims the surface of the brief account found in the standard text.

Buzz groups, job groups, study-work committees—these are only a few of the kinds and varieties of classroom grouping. They can all play an important part in facilitating learning and should be utilized at appropriate times and for appropriate purposes.

Why Should We Group?

The reasons for small group work within our classes are obvious and valid, but they cannot be reiterated often enough in this age of conformity.

First of all, we group in order to provide for the vast differences that exist among any aggregation of individuals. The great varieties of interests and purposes, the wide range of talents and skills, the important differences in ability and potential, in speed, depth and nature of comprehension—all these distinctions necessitate the use of many varied materials and resources as well as classroom procedures that provide opportunities for each student to move as rapidly as possible in reaching his own potential. And these great differences exist, regardless of any effort to implement ability grouping. For while students can be assigned to classes on

the basis of similar I.Q. scores and reading levels, all the other kinds of differences cited here are present and defeat any effort at "homogeneous" teaching, and rightly so.

We can no longer afford the luxury of such homogeneous teaching, wherein 30 students read the same book, answer the same questions, listen to the same words as continuing standard fare during the school year. In fact, the results of such standardized teaching lead us to a second reason for using groups within our classrooms—that of promoting more effective learning. We have much evidence to support the thesis that small group work, when appropriate, can result in better learning. For example, we know that people tend to learn better that which has meaning and purpose for them; that learning is more effective when the learner is actively involved in the learning process; that the total "power" in a group is often greater than the sum of power found in the individuals involved. Were we to keep only these three guiding principles in mind, we would see how a judicious use of committee and small group work can improve the quality and quantity of learning.

A third reason for grouping within our classrooms can be stated simply—to vary our teaching-learning procedures. Variety in the learning situation is essential if we are to match method with purpose, procedure with content, approach with maturity level and student needs. The whole concept of method is based upon the appropriateness of any given procedure, technique, approach to the relevant factors involved—nature of the learners, nature of any given content, nature of purposes and goals, to name the major considerations. Therefore, any sound theory of methodology involves the use of varied teaching procedures, which in turn include the use of small group work.

Another reason for variety in the learning situation lies in the nature of adolescents, who in their early development have relatively short attention span and need frequent and relevant change of pace. In addition, they need opportunities for productive release of energy, opportunities that can be found in their own involvement in as many aspects of the learning process as possible. The stereotype of the traditional classroom—teacher in front of the room directing a recitation with expected conformity of behavior, response and attention from class members during the entire period—offers little opportunity for release of pent-up energy and necessary muscular and mental activity so typical of the adolescent age.

Perhaps the most significant reason of all for using small group work is that by so doing we are helping to achieve one of the most important goals of education—the development of an individual capable of living and working within the society of men. One of the most insistent needs of modern times is the need of men to learn to live together in some semblance of peace and order. Mankind has not yet acquired the know-how for such global existence, although efforts have been made since the dawn of time. It would be fantastic and tragic to believe that individuals are born with the talent to live with others. Rather this is a learned skill, an acquired art; and it is time that the school must recognize its responsibility in teaching the fundamentals of good human relationships.

In many instances we group in the classroom in terms of commonality—of interests, skills, talents, ability. At other times grouping should be based

upon differences, involving varied backgrounds, viewpoints, personalities. These two kinds of grouping play an important role in achieving the aims of the educative process.

How Can We Group?

A usual form of small group work based on commonality among students is that of small interest groups. Regardless of the nature of the group—work-study, buzz, or job committee—there are many times when students can be grouped on the basis of a common interest. The interest might take the form of decorating for a class party, exploring the relationship of mathematics to architecture, investigating statistics concerning mental illness in urban communities, preparing a bulletin board on Presidential inaugurations. Whatever the problem, topic or task, it is a common interest in it that ties the students in that particular committee or group together. Together they can plan, investigate, share, solve, accomplish in the pursuit of the specific goals or tasks facing them.

Similarly, a skill or talent brings some students together for working purposes. In an English class study of newspapers and their role in contemporary society, students might decide to prepare a newspaper of their own; or a history class might want to develop a newspaper as it might have appeared in the time of the Revolutionary War. In either case there will be some students who can type who will assume the responsibility for that aspect of production; there will be other talented youngsters who will take charge of the art work; while still others, based upon interest, will work on feature articles, editorials, advertisements, and the like. Not only is this a practical demonstration of essential division of labor but also a working model of the variety of talents and skills and interests needed in producing an essential feature of our everyday life.

In a different way, grouping on the basis of commonality can be utilized in an English class to help with reading skills or in a mathematics class to guide comprehension of various processes. There are many times when teachers of these subjects should meet with small groups of students who have similar problems in increasing their reading rate or understanding a certain grammatical principle or penetrating the mysteries of prime factoring. How wasteful of pupil man-hours is the teacher who "spends" the time of an entire class to drill and review a process, skill or concept that is understood by a large number, even a majority of the class.

We must not, though, overlook the many occasions when we should be permitting students to group on behalf of differences rather than similarities. For example, where exchange of opinion is desirable, we can provide for buzz group sessions. During these sessions, adolescents share with each other reactions to books they have been reading or the themes, essays, or compositions that are a part of every writing program. Not only should students have the benefit of the resulting wider acquaintance with literature and their own creative writing, but this procedure also has the merit of saving time. Thirty book reports, given singly, may not only promote boredom but may take precious class time that can otherwise be put to more effective use.

Similarly, when critical and controversial issues are under discussion and study, the therapy involved in letting

students exchange ideas, beliefs, opinions and even prejudices in quick buzz groups may be recommended. Young people must have opportunities to discover how other people—their own classmates—think and feel about many matters, varying from "going steady" to "advantages and disadvantages of foreign aid proposals." In addition, they are gaining valuable experience in a much-needed art—that of communication for understanding.

Guides for Effective Grouping

For those who would engage in classroom grouping practices there are some guidelines that are important if maximum values are to be gained. Only a few can be mentioned here.

First of all, it is essential to remember that grouping procedures should be used only when they are appropriate to the task at hand, the goals to be achieved, the nature of the content involved. Also they must be handled in ways appropriate to the maturity level of the students and to their experience with such procedures. Certainly a class that has never experienced small group work should not be plunged into difficult committee study without careful guidance and realistic expectations.

Related to this caution is another guideline: a constant recognition that group living and group processes are learned skills. As such they are subject to the same helpful guidance and practice and evaluation that are involved in all learning, whether it be ideas, information, attitudes, skills or appreciations. Patience and imagination on the part of the teacher, along with firm understanding of human behavior, individual and social, are essential for effective teaching of group processes.

In this regard it is wise to bear in mind the maxim, make haste slowly. The teacher must be sure that students understand what it is that they are to do and that they have clear-cut procedures for moving ahead. When false starts are made, teacher and class must re-examine their plans, modify procedures where necessary, try again—and again—and again.

In the final analysis the role of the teacher is, of course, crucial. The teacher who assumes that, once a class is organized into groups or committees, students should automatically make progress without delays, difficulties or differences, is unrealistic and naive, if not incompetent.

On the other hand, the teacher who sees the skills of group living and working as similar to skills in communicating and computing and critical thinking will devote the same patience and understanding and planning normally given to these latter learnings. He will meet with each work committee as often and as long as necessary for its effective functioning. He will see that appropriate and sufficient resource and research materials are available. He will move rapidly from buzz group to buzz group, catching the essence of each in both content and process as he roams. He will develop with his students ways of recording and reporting progress, individual and group. He will note personality clashes and individual problems and provide suitable guidance. He will expect of his students the best of which they are capable, knowing that few persons ever match grasp with reach.

In short, the teacher who uses groups and committees to further the education of his charges is placing the responsibility for learning where it primarily belongs—in the hands of the students.

Jeannette Veatch

Grouping Is the Function and Process of Content

Teachers must organize so as to teach specific elements.

THERE is, according to Wilton Krogman, no such thing as an *average* child. And he is not alone in that judgment. How, then, can grouping based on *any* kind of *average* measure, be it physical, mental, emotional or what have you, be justified?

I do not think it can. Yet certainly we *do* need to group in our classrooms. Purposes of (a) teaching and learning efficiency, (b) need for collective action, (c) for gregarious or friendship feelings must be served. Yet if no kind of *average* measure can be used, what other measures are possible? There is one that I know about and, very simply, it is that teachers must group to teach *single particulars*, using such as bases for classroom organization.

Such grouping on a single particular can come only after an initial, exploratory teaching act which, en masse or individually, enables the teacher to identify specific items or elements common to two or more children. These single items, these isolated "particulars," then, become the "lesson plan" for those particular children, and *no others.*

The problem, it seems to me, for teacher preparation and supervision is to help teachers learn *how* to identify and act upon those single elements in order to teach specific children *what* they need to know exactly *when* they need to know it.

Some would say that achievement tests could serve to highlight particulars upon which a teacher might group a class. However, Celia Stendler, in the current yearbook of the Department of Elementary School Principals [1] says flatly:

> The practice of putting enough faith in results of standardized tests . . . to justify their use for placement purposes . . . is extremely questionable.

I, too, would question *any* test for such use. Especially would I question published tests because they aim at *averageness* and so are not applicable in a given classroom for *specific* teaching plans. No test maker *can* know a given group, and any amount of standardization simply misses this point, whatever other values such instruments might have.

For example, what reading-readiness tests, what reading tests, what I. Q. tests

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[1] Department of Elementary School Principals, NEA. *Those First School Years.* Washington, D. C.: the Department, September 1960. p. 156.

are specific enough to help a teacher to know *exactly* what to work on with which children on the following school day? Testing experts freely state that such measurements are exceedingly gross at best, and plead with all users to "Follow the directions carefully." In short, it is my opinion that published tests are useless for continual—and continuing—*daily teaching operations*. Of course, they do have other purposes. But that is for another paper.

Grouping, I believe, must be a function and process of content, curriculum, and of its learning. By this I mean: if the content is narrow, the grouping *range* is narrow; if content is wide and varied, then grouping *range* can be wide and varied.

For example, if a text is at a readability level of 4.5, then, for efficiency's sake, every member of the class reading *that* text should read at the level of 4.5. This is patently ridiculous, because all reading achievement tests measure such a complexity of reading performance that to assign a 4.5 pupil to a 4.5 text *still* does not guarantee a practical, workable homogeneity.

What does guarantee a practical, workable homogeneity? I repeat that grouping must come after particulars are isolated in a preliminary, initiative kind of teaching action.

Studies on grouping presently available—and they are numerous—show that the *way* children are grouped has little significant effect. It is what the teacher *is* and *does* that makes a difference.

However, there is no study, to my knowledge, that includes measurement of the kind of grouping I am discussing here. We need such studies. One must turn to non-classroom centered practices, which are not researched, to my knowledge, but are highly relevant to my point. For example, coaches of all team sports isolate players upon specific needs, such as perfecting the ability to bunt in baseball, to catch fly balls, to hit grounders; or such as learning to wipe water off one's face in swimming before one can learn to hold one's breath under water when learning to swim; such as perfecting the ability to kick field goals in football, or pass accurately.

The manuals of the American Red Cross, Girl Scouts, Boy Scouts, and other youth serving agencies are full of suggestions of grouping *upon specific needs*. These needs are usually tangible, recognizable, and almost immediately attainable. These practices are useful, efficient and practical. Yet educators have spent decades in working on "fluid" and "flexible" grouping without coming to grips with the central problem: *Do you, or do you not, in school instruction, group children when* they *do not know the* specific *reason for which they were put together?* I think not. Let me turn to daily classroom practice to illustrate this.

Beginning Reading

The first day of school in the first grade, the teacher will help the children to paint, draw, play with blocks, institute necessary routines, and above all, talk. The teacher sizes up the children and, without a need for reference to *any* published reading readiness material—notices various abilities. *Some* children talk a blue streak. The teacher finds them, calls them *by name,* forms them in a circle and moves them along the first step towards reading by *writing down what they say* on the easel or blackboard.

The teacher notices that other children are frightened and overwhelmed by the new situation. "Come with me,"

she says, calling them *by name*[1] and helps *them* to express *themselves*, probably not by *talking* so much as by drawing, or painting or some such. Thus these children form *another* group, and the next day can be called by the teacher to tell about *their* pictures, which can then be labeled, and added to the developing sight vocabulary of those children.

The teacher knows that the child who cannot enjoy two-way communication is the child who cannot read, so the groups are formed—different ones each day—to further and improve this learned behavior. Shy children whose communicative spirits are dampened by the loud and boisterous are grouped together and helped *to talk*, or perhaps to draw or maybe to sing. The teacher keeps up incentive by saying something like, "Tell me about your picture, so I can put your words down on it," or "When you say something, I can write it—and you can see how what you said looks *in words*."

The slow talkers are grouped on the basis of *needing practice in talking*, no matter what other characteristics they have. As the weeks roll by, the teacher can easily spot those children who are bursting with signals of readiness to read by their delighted, "Hey, that word starts like my name!" Then these children may be worked into a group, and later, perhaps, be scheduled for individual conferences with their teacher for more detailed reading instruction. As children develop more and more independent reading ability, and as their individual conferences reveal common needs in skills, or common interest in the same book or story, the teacher can plan more and more groups.

[1] See the column, "Talks with Teachers," by Alice Keliher, in *Grade Teacher*, November 1960, on this point.

An infinite number of ways to work together, with or without teacher instruction, is possible. In such grouping, *it does not matter* if the children differ widely in intelligence, in cultural backgrounds, in achievement or in anything else. What *does* matter is that there be *one single purpose* binding the group together for the *duration* of that purpose. There is no guess work on the part of the teacher as to which child should be assigned to which group. For example, he knows *for certain* that John, Bill, Mary, Suzy and Joe all need help on the consonant digraphs, *ph, th, sh,* and *ch*. So the teacher plans for *that* group, sets the time, then teaches *that* needed skill. Rather than scatter knowledge to the whole class, hoping it will fall on fertile ground *but not knowing where it* needs *to take root*, teachers find specific reasons for group organization. As with the baseball coach, certain things are needed. In reading, these are isolated or revealed through some kind of an individual conference or other teaching act, as has been described.

In beginning this article, I referred to the need for an "initial, exploratory teaching act, which, en masse or individually, enables the teacher to isolate specific items or elements common to two or more children." Let us examine the preceding classroom example for such initial actions.

1. The teacher helped the children to paint, draw, etc., and in so doing noted the children who were voluble, those who were quiet or shy, etc. The exploratory teaching act of getting children busy was all this teacher needed to group on such single bases.

2. As the weeks rolled by, the teacher picked up the signals from children whose maturation enabled their hearing to assist the eye in seeing *parts* of words, e.g., be-

ginning consonants, thus affording other specific bases for making a group on these most necessary basic skills.

3. As general independent reading ability developed throughout the year, common needs, skills and purposes revealed themselves. These are exploratory actions which provide the teacher all the information necessary to group continually, day in and day out, without any need to refer to tests for his daily planning. This is not to say that I would not advise a year-*beginning* testing program with the best standardized achievement tests available.

Written Language

How would such grouping work in the area of written language? Not many teachers *do* group in this area of the curriculum, and those who do reap rewards of greatly improved writing and improved attitudes *toward* writing. In short, the *love* of writing is enhanced. How does it work?

First of all, the pupils write for reasons that they consider important—letters to a sick friend, or to request free material from some business concern, or to invite someone to come and see them—*not* to learn what a good beginning sentence is, *not* to learn how to paragraph properly. These are skills that later come through individual conferences with the teacher, or when, for reasons of efficiency, through *group* conferences. The writing comes *before* the grouping, not *after*.

All good writing starts with a good idea. If the idea is no good, the writing is no good. And the ideas come from within the writer, even though his train of thought may be set in motion by the teacher.

Let us say that a certain teacher is successful in interesting his pupils about writing on a certain day. The children write enthusiastically. They have something to say. The teacher facilitates the writing. He says something like, "I wonder what things you need to know to be good writers that I could teach you?" Some children are eager. *Most* children, I believe, want help once they can ask for it without embarrassment. The letters, etc., are given to the teacher for mailing and looking over. Without grading or even marking the papers, the teacher goes through them one by one, sees what is needed, and makes notes. Perhaps several children need help in using the rule involving long vowels. Others are at sea in the use of quotation marks. Others are dull as dishwater with repetitive ideas from one writing time to the next. The teacher makes a record of all this, and plans accordingly, approximately within a week, to make certain that the indicated groups are met, and their deficiencies corrected.

When such single items are isolated for teaching, it rarely takes more than five or ten minutes to do it. In each case the child knows the reason for the existence of the group—and accepts it as reasonable. The child does not think "I am a dumbbell," but rather "I need to learn how to use quotation marks for my next letter." The motivation for such learning is enormous and generates more and more will to learn. It is exciting to work on a skill when you know how important it is to you.

The element of pupil self-choice is an underlying thread throughout this discussion. Grouping, as I have tried to present it, brings into focus the ways in which teachers can show children their *specific* disability without feelings of inferiority. When a pupil knows what he needs to know, the psychological effect is that of stimulation and challenge, not inferiority.

Maurice J. Eash

Some generalizations from research

Grouping: What Have We Learned?

Education is essential not only to individual fulfillment but also to the vitality of our national life. The vigor of our free institutions depends upon educated men and women at every level of the society. Our schools must prepare *all* young people, whatever their talents, for the serious business of being free men and women.[1]

THAT education is essential to national survival is a question which is no longer being debated. Yet the means to promote a type of education which will insure the vitality of democracy is still an important area of discussion. In the list of currently debated means to accomplish agreed upon ends, the amorphous, protean subject of grouping ranks quite high.

Recent reports by distinguished scholars endorsing use of ability grouping in most subject areas have heightened the concern of serious educators. Certainly these reports have been seized upon as documentary evidence that specific patterns of ability grouping must be pursued if the schools are to be effective in their effort to preserve our society. The practice of widespread use of ability grouping has been resurrected after 25 years of dormancy. Consequently, ability grouping practices are being formulated and adopted by many educators without their consulting the available research as to the effect of these practices on learning.

In analyzing the research findings, it is imperative to recognize that the research must be related to a particular value orientation. This orientation is the preservation and promulgation of the democratic way of life whose major feature is the importance of the opportunity for self development for every individual. The function of research, as far as grouping practices in a democratic society are concerned, is to uncover those practices which are supportive to developing democratic personalities and to expose for what they are those practices which are inimical to democratic processes. Any research approach which willfully ignores this value orientation for some vague referent such as "science," or to promote greater efficiency in a narrowly defined area of learning, may participate, however unconsciously, in injury to a social order which has promoted the self development of the individual more than any other comparable system in history.

Bruno Bettleheim succinctly maps out this road to destruction in his recent

[1] John W. Gardner. "National Goals in Education." *Goals for Americans.* Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1960. p. 81.

article, "The Ignored Lesson of Anne Frank" (3). In the Gestapo concentration camps as well as in their civil life, many Jewish people of Germany willingly participated in fashioning their self destruction as they suppressed their strong value orientation in cooperating with the Nazis in order that they might for a brief time remain physically comfortable. They divorced means from ends in their immediate lives, removing themselves from the realities of the dreadful consequences of their practices.

As one witnesses the reaction of many educators to basically discriminatory, antidemocratic practices in the school, one wonders whether the same commitment to a comfortable illusion obtained by separating means and ends is not involved in some of the present school practices. It is imperative that the grouping practices which are sanctioned are those which will support the development of democratic behavior and encourage the goals of individual development. This article, then, is concerned with developing some generalizations which are supported by research findings and which will give educators some guidance in the area of grouping. These generalizations are organized under three major headings: (a) Ability grouping and achievement; (b) Grouping and personal and social development; and (c) Areas of needed research.

Ability Grouping and Achievement

Perhaps the most commonly practiced grouping in our schools is ability grouping, sometimes erroneously referred to as homogeneous grouping. This type of grouping customarily places children in a class according to group IQ test scores or some other standardized test score. One of the primary motivations for practicing ability grouping has been the rather generally accepted assumption that children, especially bright children, learn more if they are grouped according to ability and taught separately. But how valid is this assumption? The following five generalizations seem to be supported at the present time by research.

1. Ability grouping in itself does not produce improved achievement in children. Improved achievement seems rather to result from the manipulation of other complex factors; curriculum adaptation, teaching methods, materials, ability of the teacher to relate to children and other subtle variables (1, 7, 14, 25, 26).

2. Contrary to statements in previous summaries of the research on the effects of ability grouping on children's achievement (most of this reported research was done in the 1920's) (22, 23, 24), more recent research evidence seems to indicate that ability grouping actually may be detrimental to children in the average and lower ability groups (13). These children appear to suffer from the deprivation of intellectual stimulation when brighter children are removed from the class. Conversely the brighter children did not appear to suffer when left with the average and lower ability students, at least through the elementary school (13).

3. Ability grouping at an early age seems to favor unduly the placement of children from the higher socioeconomic class in higher ability groups. These children do not necessarily benefit, at least in elementary and beginning junior high school, from the increased academic diet (4, 12, 13).

4. Research evidence in the area is quite meager, but what is available does

not support the prevalent assumption that college achievement is improved by ability grouping in the high school. Rather, improved achievement in colleges as the result of high school training is a function of other complex factors than ability grouping (1).

5. Ability grouping as an organizational structure may accentuate the attainment of goals and symbols for goals of narrow academic achievement to the extent that other broader desirable behavioral goals and objectives are attenuated and jeopardized. The organizational structure of ability grouping may promote group norms which are antithetical to norms that foster societal cohesion and individual societal responsibility (17, 25).

Grouping and Personal and Social Development

A second broad problem which has been a cause for major concern among thoughtful educators with the advent of ability grouping as a major instructional procedure in recent years is the influence that ability grouping may have on the student's personal and social development. The question stated in its most direct form is, "Does ability grouping militate against personal development (especially development of a healthy self concept) and social development of children?" Research findings on ability grouping as it relates to personal and social development of students would appear to support these important generalizations:

1. The evidence is fairly conclusive that grouping practices in a school can assist in developing social situations that influence the student's perception of self, his sense of dignity and worth, and his attitudes toward other children. In view of this, grouping practices should be concerned with furthering the establishment of social climates that will encourage the intellectual, social and personal development of every child without detrimental effects on individual children (17, 19).

2. Grouping practices are significant factors in establishing a teaching-learning situation whereby children can acquire the general education skills and abilities needed by all citizens in a democratic society (21). This means, in brief, that students need opportunities to work in common purpose with a wide range of individuals. Grouping practices which separate students on the basis of ability as determined by group IQ or standardized tests reduce the likelihood that students will be exposed to a broader range of ethnic and cultural differences in the society (12, 28).

3. Pressures to institute certain grouping practices in our schools represent pervasive social problems in our culture. Educators need to be doubly alert that the schools are not utilizing grouping practices which assist in maintaining and promoting social and racial biases which militate against the general education objectives, equal educational opportunity and the development of each person as an individual (4, 28).

4. The solutions to the broad problems of learning are probably not to be realized in some scheme of ability grouping. The key to what happens in any instructional group is probably the classroom teacher (11, 26). Grouping can assist a teacher in attainment of desirable general and special education ob-

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jectives, but grouping practices are in no sense a substitute for teacher competence (27).

Areas of Needed Research

1. There are certainly some differences in the problems of grouping as they are encountered in the elementary and the secondary school. As the students progress, research shows that the range of differences widens. This broader range of differences in the secondary school will surely necessitate different practices in grouping. Consequently, a major issue in the secondary school curriculum is how to maintain groups which structurally provide the opportunity to promote general education objectives and also develop groups which will give attention to the encouragement and development of special interests. Both areas need attention in our concern for strengthening our society.

2. The second problem concerns the relation of grouping practices to that vast number of children who because of their underprivileged environment have been called disadvantaged (5). Can the school develop educational programs that will assist these children in developing competencies and, at the same time, avoid practices which segregate and even prompt their early elimination from school? There is some evidence that cultural deprivation begins to exact its toll at an early age. At the age of three the unfavorable influences already begin to weigh heavily upon the child (9). Therefore, it has been suggested that these culturally disadvantaged children be started to school two years earlier in order to compensate for the intellectual impoverishment they suffer.

3. A third problem which lies at the very heart of the instructional process, and one which will take considerable professional courage on the part of many educators to face, is a need for an exploration of the reasons for the popularity of ability grouping among our teachers and administrators. Ability grouping in elementary schools especially is woefully inadequate in reducing to any great extent academic differences of more than one variable. Yet, despite this evidence, a large segment of the profession seems at present to be firmly committed to the practice of ability grouping (6, 8).

One anthropologist has suggested that some teachers unconsciously project their own psychological needs into the classroom and, therefore, favor groups of children who give them need satisfaction (10). These teachers receive need satisfaction from children who have learned to be sensitive to adults' psychological needs and are responsive and eager to fulfill these demands by their classroom action. This would mean that teachers who are motivated by this particular psychological needs system would select children who are sensitive, docile and compliant, and would reject those children who are resentful, rebellious, unable or reluctant to relate to a teacher's need demands. Tacit admission of this situation is seen in the common administrative practice of giving a teacher a "fast" group the next year if he or she will take a "slow" group for a year. Generally, the "fast" groups are made up of those children with whom teachers are happy (receive need satisfaction from) to work. Are grouping practices serving some underlying motivations rather than concern for students' learning? This may be one of the more fruitful hypotheses to explore in trying to understand an uncritical acceptance of

ability grouping practices based at best on specious measures of abilities.

4. A fourth problem on which more research is needed is in the area of creativity. Recent researchers in these areas are raising questions as to whether our present grouping procedures do not actually discriminate against creative children in favor of their docile and/or conforming peers. At this time our measurements in the areas of IQ and academic achievement do not correlate highly with measures of creativity, and in our desperate search for talent our schools may be overlooking the talent most urgently needed, the creative individual (8, 18). With the advent of the technological developments many of the technical, specific skills which we seek to develop in our schools may be obsolete as computers take over these processes and a higher premium will be placed on those who can creatively design and program problems for the machines (16). The big question in this area is, how can the school discover and foster this talent? Ability grouping, at this time, definitely does not seem to be of assistance in the solution of this problem.

5. The last area, but one of the most promising for new information on the development of human personality through structuring social organizations, is the current research movement which is examining the complex dynamics involved in the interaction of human personalities and social organizations. This movement has been characterized by the use of elaborate theoretical conceptual systems which serve as frameworks to organize the multitude of variables involved in the process of interaction. While education has been slow in researching this area, industrial psychology has explored this field in greater depth (2, 15). However, a recent publication of the National Society for the Study of Education, *The Dynamics of Instructional Groups,* uses some of these new concepts in analyzing the sociopsychological characteristics of instructional groups (20). This research may very well change our conceptions of what constitutes a good instructional group. Educators need to follow carefully these efforts and also, with their own research, to support investigations in this area.

There is undeniably a great need for more and better research in every area of grouping. Unfortunately many of the current "studies" reported are not predicated on any acceptable research design and in fact seem to be directed to supporting preconceived conclusions. Thus, it would seem that the research design must take into account such factors as: learning in its broadest sense, longitudinal achievement data, pupils' attitudes and values, the influence of group interaction, and differences in teachers' classroom performance, to name but a few.

Nevertheless, the author believes that the generalizations which have been reported in this paper have been established by research in education and in the allied social sciences. He also believes that these generalizations can give us guides to action, increase our objectivity, and buttress our courage to pursue desirable educational goals in the face of public pressures which often urge the schools to subscribe to fads. If educators choose to pursue policies and practices which ignore these researches and to promote a value system antithetical to the democratic value pattern, as was pointed out in the first part of the paper, this is done at great risk to our future. Here rests the challenge that these re-

search data hold for our educational practices in grouping today.

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Dorothy S. Cowles [1]

One outcome of

Creative Supervision

PERHAPS the supervisor's greatest challenge comes in the principle, "supervision provides effective ways for the release of creative potentialities of the people involved, to the end that the maximum amount of growth and learning will take place." [2] In order to follow this principle, supervisors must strive for a climate in which creativity of thought and action may be inspired and released.

Democratic life in any field will develop creativity. Creative leadership in the long run is vitally necessary to the success of the democratic life. Supervision, in addition to providing opportunities for creative contribution, will deliberately seek latent talent, will deliberately manipulate the environment to provide settings for creative expression.[3]

Because a democratic climate, conducive to creativity, existed in her school in West Hartford, Connecticut, and because she was secure in the knowledge that her principal and supervisors would encourage her action, the writer conducted the following activity, one tantalizing April morning.

A Spring Assignment

Through the windows of the sixth-grade classroom, the scarlet blossoms of the maples could be seen, playing hopscotch with the sunbeams. The robins triumphantly shouted their optimistic, "Cheer-up!" The smell of warm sunlight on newly turned earth crept into the nostrils of the teacher and the boys and girls pursuing their morning routine.

Suddenly, the teacher went to the chalkboard and wrote "Spring Is in the Air." The children read the words, relaxed in their seats, breathing, "It sure is!" as they gazed longingly out-of-doors.

"If we were to write on that topic, how could we make our essays alive for others?"

"Use an interesting beginning sentence," came one response.

"Use powerful nouns and verbs, and colorful adjectives and adverbs," answered another.

"Don't forget to make people see,

[1] When this experiment was conducted, the writer was sixth grade teacher in the Eric Norfeldt School, West Hartford, with David Duval, Principal.

[2] American Association of School Administrators. *The Superintendent as Instructional Leader,* 35th Yearbook. Washington, D. C.: the Association, a department of the National Education Association, 1957. p. 9.

[3] William H. Burton and Leo J. Brueckner. *Supervision—A Social Process.* New York: Appleton-Century-Crofts, Inc., 1955. p. 84.

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hear, feel and smell the things that you are observing," admonished a third.

"Remember, too," added the teacher, "that kinesthetic words, words that we seem to feel in our very muscles, the fibers of our being, create very powerful images in the reader's imagination."

"Oh, yes. You mean '*rolled* down the hill' would make one feel more than just '*went* down the hill.' "

"Exactly. Is there anything else to remember in writing an essay?"

"Don't drag your ideas out. Build to a point, and then finish off fast with a bang-up ending sentence," contributed Mel.

"Fine. Now, this morning we are going to try an experiment. Will you five," the teacher said, naming two boys and three girls, "take your papers and pencils with you out-of-doors? Go anywhere you'd like on the playground; write down ideas that come to you on the topic 'Spring Is in the Air'; and return to the classroom at the end of half an hour."

The five very happily left the room, and went to the spacious playground. No need to ask the principal's permission. This was a permissive school.

"Meanwhile," the teacher addressed the remaining pupils, "let's see if we can, through our imaginations, project ourselves outdoors, writing down our thoughts and feelings."

For half an hour an occasional sigh, the clicking of the clock, the scratch of pencils indicated that the children were writing.

At the end of 30 minutes, the five adventurers returned. Everyone eagerly awaited the reading of the results. The teacher offered to read for the children if they preferred. Many papers were handed to her, others retained for personal reading.

Before she had read more than a paper or two, the teacher realized that something rare and very remarkable had occurred. The pupils themselves listened intently, commenting, "That's beautiful! I can tell that that person was out of doors, I feel as if I were there, too!"

Or, "I didn't know that what I wrote would sound like that!"

Or, "How does the writer use words so beautifully?"

Almost without exception the children could identify the papers written outdoors. A few of the pupils writing from indoors were able successfully to project themselves outside, but in general their results seemed more prosaic.

To illustrate, some of the writings, with excerpts from others, are included here.

Jack, writing from indoors, expressed himself briefly:

> You feel lazy from the fresh air of Spring. All around you flowers and plants are getting up from their long winter's sleep. Everything around you feels and smells fresh and clean. You feel that God made Spring just for you.

Contrast this with excerpts from Bruce's offering written out-of-doors:

> On a cool, brisk day I went out. All of God's creatures were just waking up. The robins, back from the South, were singing their light, happy, cheerful song. The daffodils were opening with their pretty yellow petals and sweet fragrance. The sun was high and bright in the sky, while the clouds drifted loosely around. I smelled the lovely scent of the flowers awakening, the grass still scented with the morning dew. . . .
>
> Going over to a lovely maple, I carved an "X" on its bark. I put my hand under the "X" and the cool sap dripped on my hand.
>
> As I started to walk through the woods, I saw a mountain spring gurgling and

chuckling with great delight. I bounded along the edge, jumping over rocks and fallen trees, doing rolls in the soft grass, till I fell in some fragrant moss. I just lay happy and gleeful with Spring. . . .

I raced over to the pond. There I ripped off my shoes and stepped into the water. It gave a cool, tingling feeling that ran through my body. I sloshed around for awhile. A bass jumped at a fly, and looped into the water. . . .

Oh, yes! Spring is here: you can see it, hear it, smell it, and touch it. Spring is lovely!

This from a boy who earlier in the year had had difficulty in expressing himself in writing! The children noted his appeal to the senses: "clouds drifted loosely around"; "cool sap dripped on my hand"; "still scented with morning dew." They spoke about the effect of the verbs, "bounded," "gurgling and chuckling," "raced," "ripped," "sloshed," and "looped."

Meanwhile, indoors, Margaret, with poetic imagination, was writing:

Spring is time to have fun,
To hear the bugs and frogs at night,
To see the bright sun.
But is Spring really in the air?
The thought came clear to my mind.
Are the birds really singing?
Is the grass the greenest green?
It looks to me as though—yes, the buds are coming out!
Is this a dream, or is Spring really in the air?

The children felt the wonder in the lines—a young mystic seemed to be reaching out toward intangible beauty.

Carol, too, with ability to project herself far beyond the walls of the classroom wrote almost in blank verse:

Spring! The word echoed through the hills, into the sky, down the valley.

"Spring is here! Spring is here!" That is the message the brook babbles, the song the birds sing.

In the cool spring breeze, the trees sway gracefully. Along the ground, sprouts begin to shoot up. Young things. Live things.

All alive.

The faint odor of early spring flowers floats and steals upon you without warning.

Far off in the distance—sounds—sounds of animals, children, and sounds of insects. Insects buzzing, insects chirping. Sounds. Live sounds. All alive.

But now, a new sound. The sound of rain. Rain keeps these things alive. Rain keeps Spring alive. Spring *is* here.

The children noted the power of the beginning line; the effective tying together of the thoughts at the end.

Following the readings the class discussed the things that had made the writings effective, concluding that writing is more powerful when the author is close to his topic, sharing his true feelings with his reader.

Kilpatrick stated the philosophy of today regarding creativity when he said, "Can the gifted alone create? I say, 'No' . . . Everyone of you, every child that you have, in my opinion, is capable of creation, and in fact does create every day. A creative act is an act which represents for the creator a new thought, a new idea, a new solution, a new analysis or a new synthesis. Creation is found wherever learning is found. Whenever an individual now has a way of reacting which a little while ago he did not have, I wish to say that an act of creation has intervened."

Supervision has gradually moved from the improvement of instruction to the improvement of learning. More than ever in America today there is need to awaken and stimulate the creative potentialities of all, to the end that optimum growth and learning will take place.

Robert H. Anderson

A report on

Crowding in the Schools: 1954 to 1961

CROWDING in the public schools is not the only problem we face today, and perhaps it is not our most pressing problem. However, crowding relates to many other problems, such as curriculum planning, instruction and teaching, supervision, finance and administration, school plant construction and maintenance, teacher supply and morale, and parent relations. It is highly important that educators keep a vigilant eye on overcrowding, at least for the light it sheds on other conditions in the schools.

ASCD sponsored a Commission on Crowding in Our Schools for five years, 1954-59. The experiences of that commission, of which the author served as chairman, are the chief background for this article.

In 1954-55 the Commission on Crowding took an informal national inventory of overcrowding. This was done by questionnaires directed to state superintendents, to state or regional ASCD officers, and to other administrators known to be concerned with the problem. Two major impressions were gained through the questionnaire study. The first was that a majority of administrators tended to deal with the physical aspects (e.g., buildings and budgets) more readily than with the *human* aspects of the problem. The Commission noted references to unwholesome classroom climate, losses of kindergarten services, trends toward militaristic atmosphere and rigid curricula, reduction of offerings in the "non-3R's" areas, and threats to medical welfare and hygiene were only infrequently made by administrators in their descriptions of the problem of crowding.

A second impression was that shocking discrepancies could be found region by region and state by state, in the actual existence of overcrowding. It seemed that there were three kinds of systems: (a) those in which enlightened and effective leadership, through good planning, had prevented a severe crowding problem from developing; (b) those in which the problem had become severe, to the distress of the leadership people; and (c) those in which the problems, though serious, were either denied or minimized by the leaders. In the example of the first group, the Commission believed, lay a key to progress for other systems; in the third group, the Commission recognized, lay the seeds of ultimate disaster.

In 1954-55 there was an emerging

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public awareness of the shortage of fully qualified teachers, of the burgeoning population, of the inadequacy of many existing buildings, and of the need for thousands of additional classrooms. Yet the "baby boom" was generally believed to be a temporary post-war phenomenon and even within the profession the teacher shortage did not generate a great deal of excitement. In 1961, there is still too little realization of the need in these areas.

Figures published in the past year or two are hardly encouraging with respect to overcrowding. The fall 1959 survey of the U. S. Office of Education reported public school enrollments of 35,286,000 [1] (an increase of 1,205,000 over 1958), 1,367,000 classroom teachers (61,000 increase over 1958), 98,000 teachers with substandard credentials (5800 more than last year, and a greater proportion of the total than in 1958), and 1,883,000 in excess of normal classroom capacity.[2] Although this last figure, which represents 5.3 percent of total enrollment, is nearly 33,000 fewer than the excess-of-capacity enrollment a year earlier, it is still a shocking figure.

In the same report it was noted that 132,400 additional classrooms were needed in the fall of 1959: 66,400 to accommodate the excess enrollments and 66,000 to replace unsatisfactory facilities. Twenty-one hundred *fewer* new classrooms were completed during 1958-59 than the 72,100 completed in the previous year; and the 62,700 rooms scheduled for 1959-60 completion represented more than a 10 percent decrease from the 70,000 in 1958-59.[3] During the year, it was reported that sales of school-bond issues were suffering a marked decline, sales during the 12 months ending September 1959 being 20 percent less than the preceding 12 months.[4] At the voter level, resistance to bond issues appeared to be stiffening all over the country, with the defeat of a $500 million bond issue in New York City, one of the most dramatic setbacks. Indications therefore pointed toward reduced construction of classrooms and in effect a reversal of the slight trend toward gains on the overcrowding problem as witnessed recently. Figures in 1960-61 tend to substantiate this pessimistic picture.

The need for additional classrooms is not a temporary or passing one. Since 1954, the phrase "population explosion" has become a familiar term in general conversation. Responsible estimates indicate an increase of at least *thirty million people* (over the present 179 million) *in the next decade,* some experts predicting that we will have 217 million people by 1970. This suggests that even if we were to double our present classroom capacity by tomorrow, we would be forced to further building before the 1960's run out!

Any claim that America cannot afford the new schools is at least ridiculous, and at worst immoral. In 1935-36 the total national income was $59 billion. In 1959 the gross national product had soared to $478 billion. The *New York Times* last year predicted a 1960 gross product over a half trillion. Phrases like "The Soaring Sixties" and "The Golden Sixties" are used by most economists. Some, like John Kenneth Galbraith, re-

[1] The NEA Research Division's *Estimates of School Statistics, 1959-60,* put the figure at 36.4 million.

[2] Samuel Schloss and Carol Joy Hobson. *Fall 1959 Statistics on Enrollment, Teachers, and Schoolhousing in Full-Time Public Elementary and Secondary Day Schools.* Office of Education Circular No. 604. Quoted in *School Life* 42:23; December 1959.

[3] *Ibid.*

[4] "News and Trends." *NEA Journal* 49:4; January 1960.

mind us sternly that our affluence carries with it a moral obligation to purchase civic and personal strength rather than mere material luxury. Our nation cannot be satisfied with two cars in every garage and two children squeezed into every school seat. Nor need it be: the economy can probably afford both the extra cars and the needed school seats, once we acquire the will for both.

Dangers in Crowding

Urgently needed is widespread public appreciation of the human meaning behind the statistics of school crowding. Over the past five or six years the teaching profession has gained in its own understanding of what crowding does to children, teachers, and to the quality of the enterprise. Evidence has accumulated as to the human values that have been forfeited, the psychological and emotional damage that has been done, the intellectual and academic losses that have been suffered, and the losses to health and safety in overcrowded school situations. Strong allies in the battle against such conditions have been found in the professions serving physical and mental health and those which work for the social welfare. Economists and sociologists have pointed to the monetary and other losses that individuals and the nation suffer when children are crowded out of school opportunities, or crowded into unsatisfactory classrooms. In 1961 it can be said that the terrible price of crowding in schools is better understood by more people than it was in 1954.

Yet remedial actions do not follow swiftly enough, and crowding continues. In fact, crowding in the *colleges* (a little-discussed problem in 1954, except among the foresighted) is the big news in 1961. This in turn increases certain undesirable pressures upon the secondary and elementary schools and the vicious circle spins 'round and 'round. In general, the greater *enlightenment* of the profession with respect to school crowding is not matched by greater *effectiveness* in doing something about it. There are, of course, exceptions, but this was true also in 1954.

While patience is a necessary attribute of the educator, it is difficult to avoid impatience in the face of conditions that imperil the very lives of children. The most frightening dimension of school crowding is the hazard of fire, yet many communities remain lax though confronted with the real possibility of fire in overcrowded schools. Even in the wake of the December 1958 fire in Our Lady of the Angels School in Chicago, which cost 93 lives, public reaction in many places was essentially apathetic and unconstructive. A few safety measures (some of them almost foolish) were rushed into law in some states, but few communities bothered to study the real problems involved.

Not enough communities, if we properly understand what is happening to school budgets, have stepped up their efforts to enforce maximum-class-size regulations, or to provide additional instructional and janitorial (and other) personnel where needed to compensate for overtaxed staff, or even approve necessary building-maintenance expenditures.

Solving Problems of Crowding

The existence of crowding in any school is a serious threat to individual and community welfare. Comments by workers in all branches of the profession make it clear that school crowding exacts a terrible price.

I firmly believe that school crowding need not exist anywhere in America. The nation's total resources are equal to the total task of providing uncrowded and appropriate schools. Resources within the profession, similarly, should be equal to the task of shaping a program for remedying existing conditions, if only these resources can be marshaled.

It is, of course, much easier to describe (and decry) overcrowding than it is to find suitable means for preventing it. Nevertheless, the bases of sound school programs have been well known for a long time: high standards of quality, effectively translated into broad policy to govern operations; an adequate financial base, not solely dependent upon one tax source; enlightened leadership possessed of both the tools and the inspiration to do the job; adherence to professionally-acceptable standards in decisions affecting personnel (pupils and teachers alike), curriculum, and materials including the school plant. It takes little magic to recount these factors, but does it require more magic than we possess to attain them?

It would seem that courage, imagination, and foresightedness are a sufficient substitute for magic. One reads with admiration, Florence Beardsley's account of how Oregon, "moving the beehive gently," has improved instruction in its schools by adherence to minimum school standards.[5] One reads, again with admiration, how Lakeview, Michigan, refused to put its children on double sessions and arranged for temporary, and apparently satisfactory, use of renovated army buildings.[6] One remembers hundreds of pieces of correspondence received over a five-year period by ASCD's Commission on Crowding in Our Schools: here the determination and the ingenuity of school administrators and others were revealed as they tackled the problem of overcrowding on their own grounds.

[5] Florence E. Beardsley. "Move the Beehive Gently." *Educational Leadership* 17:203-207; January 1960.

[6] Alvin Zachrich. "They Wouldn't Go on Double Sessions." *School Management* 2:29-31; December 1958.

Coping with Crowding

While the best way to cope with crowding in schools is to *prevent* it, it is nonetheless necessary to know how to cope with it when, despite our precautions, it appears.

When pupil enrollments temporarily outreach the available space, certain arrangements can give some relief. These might include:

1. Providing greater-than-usual opportunities for children to stretch their arms and legs under the guidance of physical education specialists

2. Expanding the library resources, to offset reduced per-pupil resources and facilities within the classrooms

3. Providing more creative arts experiences, under the guidance of an enlarged staff of qualified specialists, an antidote for the formal, "3 R's" emphasis that invariably characterizes a crowded program

4. Expanding the school staff in guidance and counseling, so that both children and adults will be given sufficient attention and services

5. Expanding the administrative staff not only in proportion to the increased enrollments but also in terms of the new or aggravated administrative problems that arise under conditions of overcrowding

6. Providing in each crowded classroom a full-time or part-time assistant to the teacher, either a nonprofessional "teacher aid" or a certified assistant teacher, to share the workload and to "drain off" some of the more explosive problems.

A study of varied approaches to

Enriched Mathematics for Gifted Junior High School Students

A. Harry Passow, Miriam L. Goldberg, and Frances R. Link

THE Cheltenham Mathematics Study grew out of an attempt to probe for a better understanding of *enrichment*. An analysis of teacher reports of experiences considered appropriate for gifted students, together with their explanations of "why," raised many more questions than it answered about the nature of enrichment. Members of the Cheltenham Gifted Youth Committee and the HMLI's Talented Youth Project staff discussed this analysis. They conceived a plan which led to designing a study of the effects on student achievement and attitudes of several approaches to the teaching of mathematics.

The plan involved studying "enrichment" in three different programs: (a) where concepts of modern mathematics were added to the existing courses of study; (b) where students were accelerated through the traditional mathematics sequence; and (c) where the focus was on more difficult and complex problems of the regular courses.

Incoming seventh graders in the fall of 1957 were selected and matched to build four comparable groups—three classes in one junior high school and the fourth in another. The criteria for matching students included I.Q. (within five points), arithmetic achievement (within six months), age (within six months), teacher rating (within three categories on rating scale), and sex. The comparability of the four groups can be seen in Table 1.

Four junior high school mathematics teachers were invited to participate and each was assigned to the experimental class of his choice. During the spring of 1957 and for the following school year, the teachers met regularly with the local coordinator and the HMLI staff members to plan the program sequences.[1] All four teachers met together to discuss various administrative and

[1] All four teachers met on two days with Professor Howard Fehr, head of the mathematics department of Teachers College, Columbia University, prior to the inception of the program. During the school year, 1957-58, the Enrichment teachers and other interested mathematics teachers not involved in the experiment met one evening each month for a voluntary seminar at which Dr. John Mauchly, co-inventor of UNIVAC, Remington Rand Corporation, Dr. Saul Gorn, head of UNIVAC Center, University of Pennsylvania; Mr. Leonard Starr, executive at the Michael Flynn Corporation; and Dr. Sid Axinn, professor of philosophy, Temple University, acted as consultants and helped in the development of supplemental units.

procedural questions. Questions of content, however, were treated separately with the Enrichment teachers and the Acceleration teacher in order to minimize their interaction and possible influence on each other's programs. Special mathematics bibliographies were prepared. Additional books and other instructional materials were purchased for both the school and the professional libraries. The specific program for each of the groups was carefully developed and weekly lesson plans were prepared by each of the teachers.

During grade seven (1957-58), the Accelerated Class covered the standard seventh and eighth grade arithmetic courses plus an introduction to elementary algebra. When, in early April, the Orleans Algebra Prognosis Test was administered, the results indicated that the class was ready to begin the 9th grade program. This was possible since the tempo of instruction was increased, review material curtailed, and some units drastically condensed. The two Enrichment Classes followed the standard seventh grade course modified somewhat to permit the addition of three enrichment units: History of Mathematics, History of Numbers, and Number Systems. The Control Class followed the standard seventh grade course, doing the more difficult problems in the regular text.

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In addition to the use of standardized tests of mathematical competence, the HMLI staff developed materials to assess attitudes toward mathematics and to test (a) interest span for working on mathematics problems (mathegram puzzles); (b) choice of a few difficult vs. many easy problems; (c) selection of computational or verbal problems of equal difficulty; and (d) choice of abstract or situational problems.

The attitude inventory showed no significant differences among the four groups at the outset of the study. The Davis Test of Mathematical Competence

Table 1.—Bases for Matching Students for Participation in Each of the Four Seventh-Grade Experimental Classes

Group	*N*	*Avg. I.Q.*	*Avg. Arith.*	*Avg. Reading*	*Teacher Rating*
Enriched-I	28	133	9.3	9.4	19 outstanding 9 good
Enriched-II	28	133	9.2	9.6	16 outstanding 11 good 1 fair
Accelerated	28	132	9.3	9.6	19 outstanding 8 good 1 fair
Control	28	133	9.3	9.8	15 outstanding 12 good 1 fair

Table 2.—Analysis of Variance of Raw Scores on STEP Mathematics Test Form 1-A of Four Mathematics Groups at the end of 9th Grade

Source of Variation	*Sum of Squares*	*d.f.*	*Mean Square*	*F*	*F.99*
Total	3488.88	103			
Among Means	585.30	3	195.10	6.72**	3.98
Within Groups	2903.58	100	29.04		

**Significant beyond the .01 level of confidence

was also administered early in the year. At the end of the year, all four groups took the mathematics part of the Stanford Achievement Battery and a teacher-made test of 30 items, 10 from each of the three approaches. The absence of test items on standardized instruments which would adequately assess the modern mathematics learnings necessitated the making of the teacher-made test, the purpose of which was to see how well the students in each class did on items to which they had not been directly exposed as well as on those items which they had studied.[2]

As an outgrowth of these experiences and after considerable study and discussion, the planning group decided to begin the University of Illinois Committee on School Mathematics program with one of the Enrichment Classes in the eighth grade. Preparation of the enrichment units dealing with modern mathematics concepts had stimulated examination and study of various programs including that of the UICSM. The availability of two Enrichment Classes permitted involving one of them in experimentation with still another approach to modern mathematics concepts. The Enrichment-I Class was designated as the Illinois Class for the following year. Its teacher attended a summer workshop and other meetings for orientation to the UICSM program and its materials.

[2] Comparison of the four groups on the standardized and teacher-made tests administered in the seventh and eighth grades will be reported in detail in another publication.

During the eighth grade (1958-59), the Accelerated Class completed the standard course in elementary algebra (normally a ninth grade course) and began Algebra II. The Enrichment Class completed the normal eighth grade arithmetic course modified to incorporate six enrichment units: Powers and Logs, Probability and Statistics, Topology, Computers, Permutations and Combination, and the Slide Rule. Most of these units were either developed by the teacher or adapted from existing materials. The Illinois Class completed Units I (Arithmetic of Real Number Systems) and II (Theorems and Generalizations) and began Unit III (Equations). The Control Class followed the standard eighth grade arithmetic program and, because it is part of the normal mathematics program in Cheltenham, started elementary algebra.

At the end of the eighth grade, all four groups took the STEP Mathematics Test, Form 2-A. Another teacher-made test consisting of 6 items from each of the four approaches was also administered.

In the ninth grade (1959-60), the Accelerated Class completed the Algebra II course normally taught to bright tenth graders. The Enriched Class completed the standard course in elementary algebra modified to permit teaching of three enrichment units: Laws of Arithmetic, Concepts of Inequality and Equation (a unit developed by the C.E.E.B. Commission on Mathematics), and

Logic. The Illinois Class finished the UICSM Unit III (Equations), Unit IV (Graphs), and Unit V (Relations and Functions). The Control Class completed the standard course in elementary algebra and, as is usual for bright pupils in Cheltenham, began the Algebra II course.

At the end of the ninth grade (May 1960), the STEP Mathematics Test, Form 1-A, was administered to all four groups. The publisher's college freshman norms were used in assessing percentile ranks. A 24-item test (again six items from each teacher) was given.

On the STEP Mathematics Test the Accelerated Class scored significantly higher than the Enriched and Control Classes (at or beyond the .05 level of confidence). Differences between the Accelerated and the Illinois Classes were not statistically significant. The Illinois Class scored significantly higher than the Control Class but did not do significantly better than the Enriched Class. The Enriched Class's mean score appeared somewhat higher than that of the Control Class, but the difference was not significant. On the teacher-made test, the Accelerated Class scored significantly higher than did either the Enriched or the Control groups (beyond the .05 level of confidence). The Illinois group scored significantly higher than the Control Class. Neither the difference between the Enriched and the Control Classes, nor the difference between the Accelerated and the Illinois classes, was significant. The data are presented in Tables 2 to 5.

A revision of the attitude inventory used in seventh grade was administered to all four groups. The items on the inventory dealt with the following topics: Mathematics Impact on Society, Characteristics of the Mathematician, Mathematics as a Career, The Nature of Mathematics, Self-Appraisal of Mathematical Ability, and The School's Effectiveness in Teaching Mathematics.[3] The four groups differed significantly on the number of "positive" or "correct" responses given in some of the categories but not in others. For most of the categories the order of the scores was similar to the pattern observed in the other tests—Accelerated and Illinois groups higher than the other two. (See Table 6).

During the ninth grade (1959-60), the senior high school mathematics teachers were actively involved in planning the further work of the four experimental groups, thus smoothing the way for articulation between the two school units during the second stage of the study. By the end of the tenth grade, the Accelerated Class will complete Plane and Solid Geometry. The Illinois Class will complete the UICSM Unit VI (Geometry) and the Third Course (Complex Numbers, Quadratic Equations, Exponents and Logarithms). There was some shifting of students between the Enriched and Control Classes. A few of the pupils in the Control Class joined the majority of the Enriched Class to work on the Algebra II course plus enrichment units as follows: Graphing Quadratics (from UICSM Unit V), Using Mathematics in Science (developed jointly by the science and mathematics teachers) and, if time permits, Matrices The remainder of the Control Class and a few members of the Enriched Class will complete the normal tenth-grade Algebra II program.

The finding that the two accelerated

[3] Some of the items were adapted from an attitude scale prepared by Hugh Allen, Jr., *Attitudes of Certain High School Seniors Toward Scientific Careers* (New York: Bureau of Publications, Teachers College, Columbia University, 1959, pages 47-50).

Table 3.—Comparison of Raw Scale Means of the Four Mathematics Groups on STEP Mathematics Test Form 1-A

Group	*Mean*	*Accelerated*	*Illinois*	*Enriched*	*Control*
Accelerated	29.00		1.62	4.86*	6.00*
Illinois	27.38			3.24	4.38*
Enriched	24.14				1.14*
Control	23.00				

*Significant at or beyond the .05 level of confidence using the Sheffé technique for the comparison of means

Table 4.—Analysis of Variance of Scores on "Teacher-Made" Test of Four Mathematics Groups at the end of 9th Grade

Source of Variation	*Sum of Squares*	*d.f.*	*Mean Square*	*F*	*F.99*
Total	1091.39	103			
Among Means	301.62	3	100.54	12.72**	3.98
Within Groups	789.77	100	7.90		

**Significant beyond the .01 level of confidence

Table 5.—Comparison of Means for the Four Mathematics Groups on "Teacher-Made" Test

Group	*Mean*	*Accelerated*	*Illinois*	*Enriched*	*Control*
Accelerated	10.74		1.03	3.17*	4.38*
Illinois	9.71			2.14	3.35*
Enriched	7.57				1.21
Control	6.36				

*Significant at or beyond the .05 level of confidence using the Sheffé technique for the comparison of means

Table 6.—Percentage of "Correct" Responses Given by Each of the Four Mathematics Groups in Each of Six Categories of an Attitude Inventory

Category	*Group*				
	Accelerated	*Illinois*	*Enriched*	*Control*	χ^2 (*using frequencies*)
1. Mathematics Impact on Society	49.0	62.5	59.8	53.6	2.05
2. Characteristics of the Mathematician	67.2	70.0	58.2	66.4	3.22
3. Mathematics as a Career	52.5	57.7	38.8	44.2	9.50*
4. The Nature of Mathematics	68.6	74.7	67.9	60.7	2.75
5. Self-Appraisal of Mathematical Ability	55.8	53.6	37.9	40.3	24.60*
6. The School's Effectiveness in Teaching Mathematics	68.0	63.2	58.7	57.1	2.15
7. Total Test	60.2	63.6	53.6	53.7	27.20*

*Significant beyond the .05 level of confidence $\left(\chi^2_{.95\ 3\text{d.f}} = 7.81\right)$

The Accelerated group did not differ significantly from the Illinois group; nor did the Enriched group differ significantly from the Control group. However, comparison of frequencies of "correct" responses for the Accelerated and Illinois groups combined as against the Enriched and Control groups combined, found significant differences in Categories 3, 5, 7. In each of these three categories the attitudes of the two combined accelerated groups, Accelerated and Illinois, were more positive than those of the other two groups combined.

groups—Accelerated and Illinois [4]—did consistently better on all the instruments used, suggests that the earlier introduction of more difficult content and/or the increased tempo of instruction result in greater mathematical competence and in somewhat more positive attitudes toward mathematics than do the other approaches used in this study. The differences between the Accelerated and Illinois groups were not statistically significant on any of the comparisons made, although the former more often scored higher than the latter. However, the fact that there was only one class of each kind and a separate teacher for each class necessarily limits the extent to which the results of the experiment can be generalized. The study is now being replicated in Cheltenham with four other classes.

In addition to providing information on the relative effectiveness of varied approaches to mathematics for gifted junior high students, this study also resulted in a better understanding of the meaning of enrichment, its evaluation, the role of the teacher in such an experimental program, and the impact of such a study on the school program.

1. The experiences throughout this study have made it clear that acceleration and enrichment are not opposing concepts. On the contrary, acceleration, either through the standard curriculum or through newly conceived curricula, provides students with meaningful and enriching experiences. Enrichment, on the other hand, becomes meaningful only when students deal with more advanced and more difficult concepts.

2. A perennial problem in assessing the results of an experiment which varies course content is that the usual measures are appropriate only where each of the groups is moving through the standard content at varying rates. They are inappropriate for assessing the effects of material such as the Illinois program or the Enrichment units. The construction of tests consisting of items from various programs results in measures which provide a fairer means of determining how well the students have learned the content unique to their own program and how well they can transfer these learnings to the application of concepts which had not been a part of their particular course content.

3. Involvement of the teachers in all phases of the study stimulated noticeable professional growth. Through their regular planning seminar sessions, through contact with specialists from the community who shared their insights into mathematics with them directly and with the students indirectly, through extended exposure to the literature of mathematics, the teachers became more competent in mathematics, in techniques of evaluation, and, to some extent, in research procedures. In addition, their confidence in themselves as professionals seems to have grown.

4. The study had an impact on the total mathematics curriculum for all students. As a result of the experience of the teacher of the Illinois Class, several other teachers now have undertaken the UICSM program and the Illinois First Course has become standard in the mathematics sequence in the Cheltenham junior high schools. Furthermore, greater articulation between the junior- and senior-high-school programs has resulted. Planning for sequence and continuity has emerged from cooperative efforts of the teachers at both levels.

[4] The Illinois Class was also accelerated since it began the UICSM program in grade eight, a year earlier than is usual.

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Pupils are now scheduled into special groups for mathematics study in the high school on the basis of the ninth grade teachers' recommendations.

The design and execution of this study are relatively clear and can be replicated in other school systems. However, the following points should be considered:

1. Grouping gifted students for differentiated instruction in mathematics highlighted the problem of the relative prestige associated with the various approaches. Acceleration—which implied going faster and being ahead of the others—was perceived by the students as having a special mark of distinction. Perhaps this could have been obviated by not requesting parental approval for participation in the accelerated program —a procedure not required for membership in the other groups.

2. Placing gifted students in special groups does not eliminate the need to individualize instruction. Some intellectually gifted students needed remedial-type instruction, while others needed guidance in independent study and work skills. Eliminating many of the rigid expectations traditionally imposed by courses labeled seventh and eighth grade arithmetic and first and second year algebra, freed the student and the teacher. Selected individuals accelerated even beyond the Accelerated Class and, in a few instances, will be ready for the Advanced Placement Program by the end of tenth grade. The experiment has helped to reinforce the notion that gifted pupils *do* need to be taught and are dependent on teachers, whether the teacher be a regular faculty member or an individual in the community who can provide the knowledge and stimulation necessary for sustained achievement.

3. Grouping on the basis of intelligence and achievement data was generally satisfactory. However these data gave few clues to the pupils' motivation to learn mathematics. Grouping had to be flexible. Some pupils were shifted from one group to another or dropped from the experimental classes over the three year period. There was little change in the relative standing of the pupils during the course of the study. Those who scored comparatively low in the first year were still among the lowest at the end of the ninth year. Likewise, the students who scored highest in the first year of the study were still among the top scorers three years later.

In a subject such as mathematics, the study showed clearly that acceleration in content and instructional tempo yielded enriched learnings. To what extent the generalization applies to other subject areas in which the structure and sequence are less sharply delimited requires further experimentation and research.

Galen Saylor

Migration Provides Leads for Curriculum Planning

Needed, in any locale:
a liberalizing education.

THE mobility of the American people is one of the significant characteristics of our culture. Many institutions and agencies of our society, and especially the schools, are affected by the high migratory rate of the citizens. It has been used as an argument for a broader federal support for education at all levels, for greater standardization nationally of the curriculum, for uniform curriculum and requirements among the schools of a city, for wide-scale televising of instruction, and for extensive use of tests in classifying pupils.

Mobility among school children is, of course, a serious problem for educators, and it has a number of implications for curriculum planning. The nature of the problem is indicated by significant studies that have been carried out by individual school systems. A recent study was made of retention rates in the high schools of 11 cities which had populations between 200,000 and one million. Transference between schools in the same district during the four-year period of normal school attendance for the group amounted to 10.1 percent of the pupils originally in the ninth grade class used as the population of the study, and 16.7 percent transferred from one school system to another school system. In the three largest cities included in the study, Chicago, New York and Philadelphia, a group equal to 23.4 percent of the initial ninth grade membership transferred between schools within the same school system, while transference to another school system amounted to 12.4 percent of the original group. Moreover, 48.2 percent of the graduating class in the first group of cities had attended two or more schools during the preceding four years of high school attendance, and in one of the three largest cities the percentage was 38.0.[1]

Migration of High School Graduates

As extensive as migration may be among the school population itself, the curriculum planner is also concerned

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[1] David Segel and Oscar Schwann. *Retention in High Schools in Large Cities.* U. S. Office of Education Bulletin 1957, No. 15. Washington, D. C.: Superintendent of Documents, U. S. Government Printing Office.

Table 1.—Place of Residence in 1960 of Graduates in 1933-37 and 1946-50 of the High Schools of a Rural-type County in Nebraska

Place	*1933-37 graduates (858 graduates)*	*1946-50 graduates (577 graduates)*
Same town as high school attended	16.7%	23.6%
Same county, but not same town	8.9	14.0
Nebraska, but not same county	26.1	32.4
Other states	43.8	27.6
Unknown	4.5	2.4
	100.0	100.0

about another aspect of this phenomenon of mobility—the extent to which graduates of a high school leave that community and establish residence in another locality. To gain some insight into this problem, the writer made a study of migration among the graduates of all the high schools in a rural-type county in central Nebraska.

The eight towns located in this county have ranged in population from 68 to 2352 during the years 1930-60. Each of these towns maintained a public high school throughout the period under study. Obviously, some of the high schools were very small and the largest one never enrolled over 250 pupils in any of the ten years included in the study.

This county, although rural, is a prosperous agricultural region and is in no sense a depressed or a submarginal farming region. During the severe drought period of the 1930's, it was hard hit by crop failures but no more so than most other agricultural regions of the Middle West. During the past decade, pump irrigation has been used extensively in the county so that by 1960 it was one of the most productive agricultural areas in the state, with many of the farm owners having large investments in irrigation pumps and equipment and in the machinery necessary to carry on a highly productive agriculture.

Graduates of each of the eight public high schools (there were no private or parochial high schools in the county) for two five-year periods, 1933-37 and 1946-50, were studied. The whereabouts in the spring of 1960 of all of these graduates was ascertained. The number of graduates included in the study was 858 for the five-year period, 1933-37, and was 577 for 1946-50. Thirty-eight graduates of the former group and 2 graduates of the latter group were deceased.

The present location of these high school graduates is shown in Table 1. A quarter of a century after graduation from high school only 1 in 6 of the graduates still lives in the same community in which he was educated. Another 8.9 percent still lives in that county,

but they do not have the same address as the high school community in which they graduated. A little more than 1 in 4 of these graduates live elsewhere in the state of Nebraska, but have left their home county. Forty-three and eight-tenths percent have moved to other states.

Migration Already Apparent

The graduates during 1946-50 have not yet moved about quite as extensively as the earlier classes, but migration is already apparent among this group of young adults. About 1 in 4 still has the same address as the town in which his home high school is located; an additional 14.0 percent live in the same county, but have a different town for a mailing address. About 1 in 3 have moved to another county in the state of Nebraska, and 27.6 percent have migrated to other states.

To ascertain some characteristics of the groups who remain in the home community and who migrate, high school rank in the graduating class was obtained. Mobility status in relation to class rank is shown in Table 2. Some caution is appropriate in analyzing these data: Rank by quarter of the graduating class is not too meaningful in some of these small high schools in which the graduating class may have been as few as 8 or 10 pupils; moreover, ranking students for each of the 10 years by quarters resulted in some disparity among the size of the quarters when totaled for the entire county.

Two important facts stand out in these data: A significantly lower percentage of graduates who ranked in the top quarter of their class have chosen to remain in their home communities; and the graduates who ranked in the top quarter of their classes in 1946-50 have moved to other states in a much greater proportion than have graduates in the other three quarters of their class.

Table 2.—Place of Residence in 1960 of Graduates in 1933-37 and 1946-50 of the High Schools in a Rural-type County in Nebraska, by Rank in Graduating Class

		Top quarter	*2nd quarter*	*3rd quarter*	*Bottom quarter*
Same town as high school attended	1933-37	10.5%	16.9%	20.3%	19.5%
	1946-50	14.6	23.9	23.1	36.7
Same county, but not same town	1933-37	9.2	12.6	8.4	5.1
	1946-50	13.9	12.0	15.7	13.3
Nebraska, but not same county	1933-37	26.6	25.6	29.1	22.6
	1946-50	34.2	35.2	34.0	25.8
Other states	1933-37	50.2	40.1	36.6	48.7
	1946-50	36.1	26.8	24.5	20.8
Unknown	1933-37	3.5	4.8	5.6	4.1
	1946-50	1.2	2.1	2.7	3.3
	1933-37	100.0	100.0	100.0	100.0
	1946-50	100.0	100.0	100.0	100.0

An interesting result of the data is the fact that about as many of the students who ranked in the fourth quarter of their graduating class in the earlier period have left the state as those who graduated in the top quarter. Graduates in the two middle quarters have not migrated out of the state as extensively. By examining the data for the two periods, we might speculate that the students who rank high academically leave the state in larger numbers fairly soon, probably because a much higher percentage of this group go to college and then locate wherever job opportunities for their particular specialties are best, but in time graduates of all types follow suit and leave the state in about equal proportions.

The data show the great extent to which graduates from a rural area, such as the county studied in Nebraska, leave the home community in which they were educated.

Leads for Curriculum Planning

The findings of this study seem to be especially significant for the proponents of the community school idea. In the early days of this movement some extremists among its advocates maintained that the community school, particularly in the small rural areas, should plan an educational program that would encourage and prepare young people to remain in their home communities. These data, as well as census data in general, show that people do not remain in their home communities to any great extent at all. Even if the idea were feasible, it would be unrealistic to plan a curriculum of a village or community high school on the principle that the school should provide a specific education for life only in that community.

Furthermore, a study such as this emphasizes anew the necessity of providing youth with a broad, basic general education, directed to the development of individual capabilities and a high level of citizenship, ethical character, worthy home membership, enjoyment of beauty, and concern for human personality. These will be the values and competencies that graduates of high school will need to have in any community in which they live. The fundamental aims of education in our culture are the same for children everywhere. These include the broad, basic goals of general education as enunciated in our widely accepted statements of aims and objectives. A narrow provincial conception of educational objectives is unwarranted. Continuity in education for any child is best attained by helping him achieve to the fullest the aims of a liberalizing education, regardless of the locale in which the education is obtained, but utilizing effectively the present experiences and the existing knowledge and insight of the pupils to achieve these goals of an education.

A third implication of these data relates to vocational training in the schools. Specialists in this field have long maintained that the secondary schools should emphasize the development of broad vocational competencies, rather than devote a sizable portion of the secondary program to education for specific vocations. Curriculum planners have long been aware of the desirability of developing broad vocational skills rather than narrow specific skills, but a study such as this confirms the soundness of such decisions. Certainly these data provide no basis at all for fostering a narrow, specific kind of vocationalism in the secondary schools of at least our smaller towns and communities.

The Importance of People

Column Editor: Prudence Bostwick
Contributor: Mary Harbage

When We Reach for Assurance

Music came to me
Sang me out of grief;
Words were whispered
in my ear
That brought my heart
relief;
Love put arms around me
I was not alone—
So I retrieved my
sling
And chose a rounded
stone.[1]

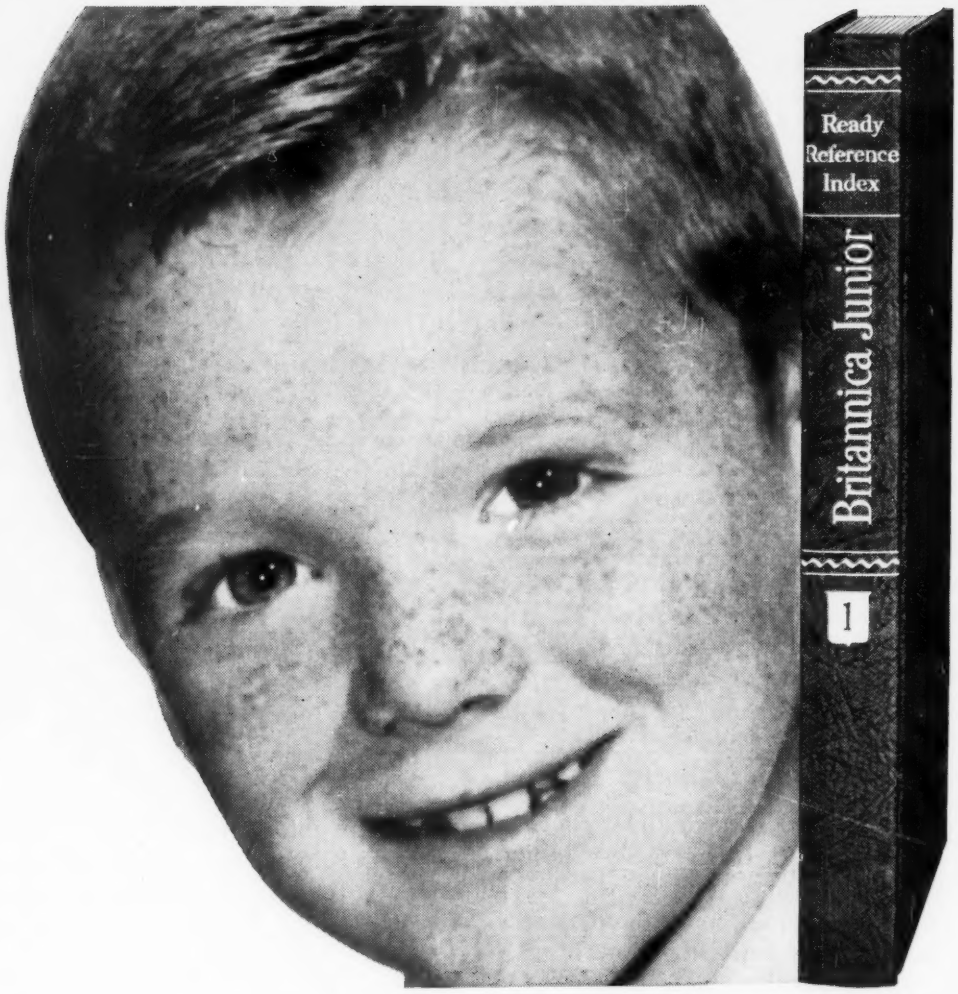
BEWILDERED, distraught, confused I sat at my desk trying to sort through the words hurtling toward me. Was I completely wrong? Was there no reason in my thinking? Others professed to be baffled at the stand I had taken. They had suggested that it was beyond comprehension. The loud angry words kept hammering at me. Their impact was almost overwhelming, coming as it did after sleepless nights and frustrated days. Perhaps this was the time to give up, to let it all go. I reached for a small paper weight—the gift of a co-worker and at this moment a symbol of understanding. Even this comfort was denied. My hands were trembling so that I was afraid to try to pick it up.

Then one of the older and wiser members of the staff came and sat beside me. In a clear but quiet voice he began to speak. His first words were lost within the turmoil of my thoughts. At last a sentence reached me. "Mary, I understand how you feel and I know why, but. . . ." In one sentence he had combined the magic of "open sesame" and "abracadabra." Tension diminished. Someone knew what it was like to be "me" in this instance. There *was* some validity in my stand, if not sweet reasonableness in the way I pursued it. For the first time it seemed that the conflict might be resolved. The words or act of love and understanding, at the right time, can make us whole again; make us strong to let us do what we must.

For Boys and Girls Too

Children often know how and when to reach for assurance and comfort when their worlds become confused. Anyone who watched "Candid Camera" one night last January saw a poignant example of this. The week after Christmas vacation a Santa visited a nursery school. He asked a young pupil, Cindy, the usual pre-Christmas questions. Hesitantly she explained that he had come to see her last week, that she had gotten all the things she had asked for. Again Santa pressed to know what she wanted for Christmas. For long minutes her struggle to understand and her confu-

[1] Harold Melvin. "Goliath Again." *The Christian Science Monitor.*



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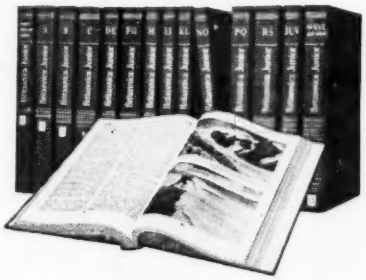

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sion were mirrored in Cindy's face. At last it was too much for her. She began to cry, held out her arms, and Santa enveloped her in a warm embrace. Nothing else was needed. She had reached for help and she had found it.

Yet boys and girls do not always know when they need help. Poor Lee showed every sign of being too much managed. It probably started when he got out of bed in the morning and it lasted all the way to school. What "Dos" and "Don'ts" his mother didn't hand down, his sister did—right to the very door of the first grade room. No six-year-old was better prepared to turn a classroom into a battlefield.

A glowering pixie face, a chip-on-shoulder stance and Lee was ready to take on all comers. There can be enough turmoil in any group of sixes without the addition of a fist-happy warrior. And so we played a daily game: I would say, "Can you keep from smiling while I turn you around three times? One—two—." We didn't need to go to three. The chip dropped away. The frown turned to a giggle. Lee was ready for a good day. He hadn't known the need for rescue, but I had read the signs.

On days when life at home had been too much for Ginny, I planned rhythms time early. I chose light and airy music which Ginny loved, music for dancing dolls and fairy queens. Cowboys twirling lassos and galloping on horses must wait for another day. The reward came when Ginny stopped by the piano to say, "I feel right gay."

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LANGUAGE AND CONCEPTS IN EDUCATION

Edited by B. OTHANEL SMITH, University of Illinois and ROBERT H. ENNIS, Cornell University

The authors of the 13 essays in this volume have examined some of the more central and pervasive concepts in educational thought, in hopes of turning the ever deepening confusion and misunderstanding into the beginning of a constructive intellectual revival in education. Expressions such as "learning by experience," "needs of the learner," and "equality of educational opportunity" are analyzed so as to uncover their varied meanings or, in some cases, to show that perhaps they have no significance at all. In addition, each essay suggests what seem to be more adequate ways to use such expressions when their meaning has been determined. A second group of essays is concerned more with operations, such as assumption-finding and explaining. The book may be used as a text or as source materials in courses in curriculum, methods of teaching, educational psychology, and philosophy of education, as well as for thought-provoking reading for everyone in the field of education.

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giving affection and faith, waiting until a child asks for help or until the tragic feelings are overcome. Ellie was cherished by her family. She was a friend to many of her peers and a joy to me. Living each day seemed to her a delight. Then suddenly Ellie showed every evidence of being in the midst of an overwhelming problem. She wept frequent tears at home and at school. She withdrew from play. She was unable to focus her attention on any kind of lesson. It was heartbreaking just to watch her struggle.

After conferences and informal talks, the school psychologist came to observe and advise. No real clues were ever found. All involved agreed that the only thing to do now was to stand by, ready to help, just in case. Actually Ellie was never really alone during these weeks; she was held fast and safe in the hearts of those who loved her. This in itself was enough of an answer. By May, Ellie was once more breezing through life on tiptoe. Apparently, this affection and support were enough to help her assimilate whatever had happened to frighten or disturb her.

Other People's Shoes

Children can catch glimpses of what it would be like to be in another person's shoes. They "hurt" as a loved pet is punished. They often reach to comfort a brother or sister starting to cry. The beautifully written best seller, *To Kill A Mockingbird*, has as one of its themes the growing-understanding of people. Near the end of the book,[2] Scout thinks of her father, "Atticus was right. One time he said you never really know a man until you stand in his shoes and

[2] Harper Lee. *To Kill A Mockingbird*. New York: Lippincott, 1960. p. 294.

3 things about spelling

Every day a great deal of nonsense is written about spelling. Frankly, there are but three things you need to look for when you are examining spelling textbooks:

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This highly successful methods text has been revised to deal with some of the newest developments in secondary education such as the use of educational machines and TV, the Conant Reports, the impact of population growth and movements, current stress on curriculum content, and the education of gifted students.

480 pp., illus., just published

Education for Effective Thinking

By WILLIAM H. BURTON, ROLAND B. KIMBALL, and RICHARD L. WING

Published last summer, this new text presents a lucid account of the thinking process and its relation to curriculum content and educational goals. The book analyzes the subject matter taught in today's elementary and secondary schools, and emphasizes those learning experiences that will improve general thinking skills. *508 pp., illus.*

The Child and His Curriculum, 3rd Edition

By J. MURRAY LEE and DORRIS MAY LEE

The Third Edition of this popular text examines the current curriculum needs of the elementary school and gives attention to probable future developments. Part I contains material on child psychology and on methods of teaching; part II considers curriculum as the means to help children develop effectively through planned experiences.

596 pp., illus.

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walk around in them." Thus her feelings about a neighbor were changed. Thus the ghost of her thoughts of him which had grown to terrifying proportions was laid to rest, was reduced to the reality of a shy and kindly man too afraid of life to enter its main stream. Atticus adds one more page to the lesson as he says, "Most people are nice, Scout, when you finally see them." [3]

Isn't this what teachers are constantly helping children do—to "see" others and find them "mostly nice"? And children need help in finding the niceness and goodness in others. Most apparent to them at first is that Sally comes to school with some of yesterday's grime still attached, that David's bluster is like a forbidding wall, and that Ondus is just plain fat.

Ondus couldn't keep up with the others. It was his fate to be eternally last. All those extra pounds had him huffing and puffing before play time was even started. Neither Ondus nor his classmates cared that he was on a diet. He was a slow mover and a fast talker. Only a few words and he could beguile any small girl out of half a candy bar.

One day when Ondus was absent, I decided that the time had come for Spartan measures. As the cookies were passed, I bravely said to the puzzled helper, "No, thank you, even though chocolate chips are my favorites." I guided the conversation which ensued so that by clean-up time the boys and girls had considered: I gained weight easily and sometimes needed help in staying on a diet. Wouldn't celery and carrot sticks be a nice change from cookies? (There was reluctant agreement.) Ondus, too, was on a diet, but he kept forgetting about it. He might have more fun if he slimmed down a bit.

The pay-off came a few days later when John placed himself by Ondus in the lunch line and issued the challenge, "If you'll take two salads and no desserts I will too." Ondus, basking in the glory of being singled out by the class leader, resolutely passed up the Apple Betty. The cooks eventually had to revise their shopping list. Not just two children, but all 28, had become calorie conscious. So it was that they came to understand Ondus' problem and through group support helped him solve it.

Early one fall Jean spilled her bottle of milk. The proper little girls nearby pulled away with murmurs of "messy" and "I hope it didn't spill on me." For the moment, poor Jean was isolated in a sea of milk and misery. I noted that the children needed to grow in under-

[3] *Ibid.* p. 296. Note: The present writer has put in the word *nice*. It is understood in the original sentence, rather than expressed.

ride.. steer..
make it Go..
- - and learn
Coordination as hands, eyes, master *real* steering wheels. Cooperation—riders, pushers taking turns. Learning—in dramatic play with school-tested Playmobiles. Write:
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standing of another's feelings. They were too quick to judge and disapprove.

During the next eight months, there were many evidences of an increased sensitivity toward others. More children seemed able to act fittingly in the face of some plight. They were quicker to protect the feelings of someone who had blundered. This came about as every six-year-old found himself in some difficulty during the year and appreciated the kindness of his classmates.

My tempering each pool of misery with the milk of human kindness may have helped.

All changes are slow, however, and new learnings are tenuously held. Many times I wondered whether all had been forgotten; but there were moments of reassurance.

Each April there comes a day when the infectious delight of spring wipes out all remembrance of the answers to sums and the way to make a capital *E*. Gone completely is the power to read with comprehension what was easily understood a few weeks before. Even supposedly well established patterns of behavior disintegrate at the soft touch of an April breeze. This was one of those days. I thought, "Can it end without disaster?"

Then it happened. Jean, who was sitting close to me, spilled her milk. We were both liberally spattered. Quickly Nora Ellen said, "Nancy, go get a pan of water. I'll get the mop-up rag." Mary Sue clucked, "Accidents do happen." Howard said, "I'll get you another bottle." And Jean herself snuggled close to me to whisper, "Will your mother scold you 'bout your dress?"

All was not lost.

—Mary Harbage, *Editor,* News Explorer *and* News Trails, *Scholastic Magazines, Inc.*

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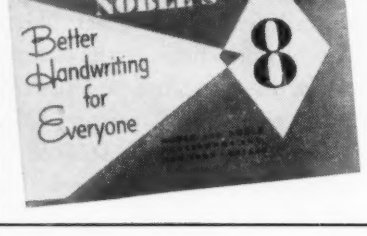

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Curriculum Developments

Column Editor: Arthur Hoppe

Study of Library Methods

Early this year the Ford Foundation made a grant of $8 million to the Council on Library Services, an independent organization in Washington, D. C., for research to improve library service and procedures. Photographic and electronic techniques are being considered as aids for dealing with the mushrooming collections of research reports. Improved methods of storing and retrieving research information are also being sought.

Results already noted include improvements in testing and standardizing library materials, equipment and systems; mechanical devices for book labeling and catalogue reproduction; preservation of paper, and improved book bindings. The Council is also concerned with "cataloguing-in-source" and with the development of basic reading lists particularly for small academic libraries. In an October conference in Paris, it is hoped that a standard system of cataloguing may be accepted internationally.

Curriculum A Major Concern

For some time the Council of Chief State School Officers has had a Study Commission working on problems of curriculum and research. Besides this, the Council has been studying the responsibilities of state departments of education in such areas as library services, nursery school and kindergarten, and education of the gifted. Preliminary reports were presented at the 1960 meeting in Little Rock; final reports will be given at a workshop planned for October 29 to November 8, 1961, in St. Paul.

The Council sponsored publication two years ago of a *Purchase Guide*, some 43,000 copies of which have been in use in connection with National Defense Education Act projects. This year, a 64-page Supplement was developed and again 43,000 free copies were distributed to school systems throughout the nation. Both the *Purchase Guide* and the Supplement describe new materials, equipment, content and emphases in the sciences, mathematics and modern languages.

Reward for Excellence

Many educators doubt that the best answers to educational problems rest with homogeneous grouping, and most would deny that financial success is the best evidence of desirable learning. Yet the record of last year's graduates of Benjamin Franklin High School, New Orleans, may give us pause. Thirty-seven students were granted over $100,000 in scholarships, and declined an additional $40,000 in awards. Of the 62 total graduates, 61 have entered college and one has joined the Ballet Russe in New York.

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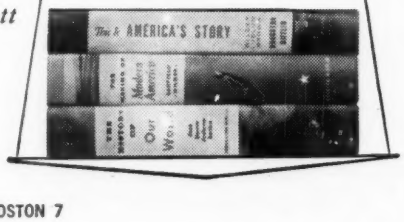

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New Services

Harry A. Passow; Denton J. Brooks, Jr.; and staff. *A Guide for Rating Provisions for the Gifted.* New York: Bureau of Publications, Teachers College, Columbia University, 1960. 4 p. Guide and 2 p. Manual. (Minimum order 5 at 25 cents each)

Here is perhaps the first practical gauge for appraising the adequacy of a school's provision for its talented students. It is *not* designed to measure degree of giftedness or specific abilities among youngsters; rather, it is meant to be an evaluative guide against which to judge school policies and practices as these affect gifted students. From this a faculty may decide how adequate the provisions are and where they might take hold to effect further improvements. The instrument was carefully developed and provides help in dealing more effectively with talented youth in school.

Illinois ASCD. *Practical Research Projects,* 1960. 56 p. ($1.25) [1]

This publication reports briefly various action research projects carried on by classroom teachers in Illinois—as activities of the State ASCD, and in support of the continuing concern for action research by the national ASCD. Fred Barnes, of the University of Illinois, has been the research consultant for these studies. The researches tend to emphasize that teachers' problems can be studied in practical ways to uncover practical solutions. Participants were led to see that research is not necessarily the highly theoretical, complex or fearful activity it is often held to be. The seven projects reported all happen to be in the area of language arts, but there are hints of intrigue and excitement which will appeal to readers regardless of the areas of their interests. The basic research procedures and the necessary tools and resources are briefly and clearly described. The Illinois ASCD may well be proud of this tangible evidence of its earnest efforts toward curriculum improvement.

[1] Order from Mrs. Nellie J. Moline, Treasurer (1960-61) of Illinois ASCD, Court House, Bloomington, Illinois.

State of Nevada School Survey Committee. *Public Education in Nevada—A Further Look.* Laramie: University of Wyoming, Division of Adult Education and Community Service, 1960. 125 p. ($1.50)

The legislature of Nevada authorized a public school survey in 1959. The

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Survey Committee engaged Dean Harlan Bryant and a professional team from the University of Wyoming to conduct the survey, with the Nevada Committee providing direction, support and review of the proposed report.

The procedures employed were thorough and comprehensive. As indicated in the foreword (p. 5) of the report, the survey team:

(1) visited every county school system including every attendance center with the exception of a few isolated rural schools; (2) observed educational environment, practices, and facilities; (3) conferred with administrators, teachers, pupils and citizens; (4) collected materials pertaining to daily programs, course offerings, operational procedures, reports of studies, budget documents, annual reports, etc.; and (5) analyzed questionnaires and opinionnaires filled out by teachers, administrators, pupils, and citizens.

The survey took five months and was concerned primarily with finance, personnel, business management and curriculum.

The findings of the survey team are presented clearly with the aid of many tables and figures. Numerous specific recommendations appear at the close of each section. Since virtually everyone concerned had opportunities to participate in this study, it is almost certain that major efforts will be made to implement suggested improvements throughout the entire fabric of education in Nevada. Happily, the children will be the primary benefactors.

Not all survey reports make very stimulating reading. This one does. Not all survey reports are replete with good ideas relating to principles, procedures and presentation. This one is. Not all surveys evoke the kinds of action that represent clear improvements in the educational scene. This one surely will.

National Aviation Education Council and the Pennsylvania Department of Public Instruction. *Teaching Guide for the Earth and Space Science Course.* Washington, D. C.: the Council, 1959. 106 p. ($1.00)

Citation of Honor to Dr. Charles H. Boehm, who as Superintendent of Public Instruction, Commonwealth of Pennsylvania, has made an outstanding contribution to space age education by establishing in the junior high schools of Pennsylvania, the nation's first comprehensive course of study in aerospace science—1960.

Thus reads the citation awarded by the Air Force Association. This bulletin is the basic teaching aid for that course.

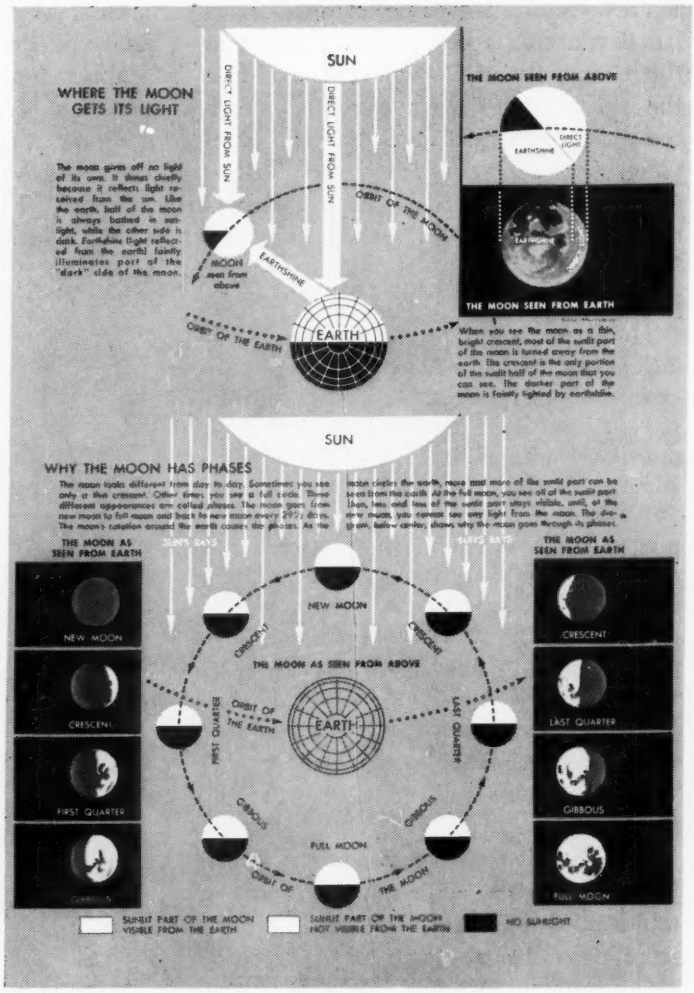
This guide was written by a Pennsylvania teacher committee with the technical assistance of astronomers, geologists and oceanographers. It is organized into four main sections: (a) the Changing Earth, (b) the Earth in Space, (c) Weather and Climate, and (d) the Oceans. Each section includes many topics, understandings and suggestions for teachers. There are many references and also instructions for building helpful teaching aids.

New Curriculum Bulletins

Alameda (California) Unified School District. *Techniques and Procedures for Teaching Reading, Grades 1-6.* Alameda: the District, Educational Services, Department of Instruction, 1960. 83 p.

Elementary teachers will find this an excellent resource for *word analysis* in the reading process. Reading specialists would consider the title of this bulletin misleading, since other important facets of the complex activity of reading are but briefly mentioned. Nevertheless, the information is accurate, the approach

This classroom-tested illustration from the Moon article appears in color in the 1961 World Book.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DIRECT LIGHT FROM SUN
DIRECT LIGHT FROM SUN
ORBIT OF THE MOON
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EARTHSHINE
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ORBIT OF THE EARTH
THE MOON SEEN FROM ABOVE
DIRECT LIGHT
EARTHSHINE
THE MOON SEEN FROM EARTH
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WHY THE MOON HAS PHASES
SUN
THE MOON AS SEEN FROM EARTH
SUN'S RAYS
NEW MOON
CRESCENT
FIRST QUARTER
GIBBOUS
FULL MOON
THE MOON AS SEEN FROM ABOVE
EARTH
ORBIT OF THE EARTH
NEW MOON
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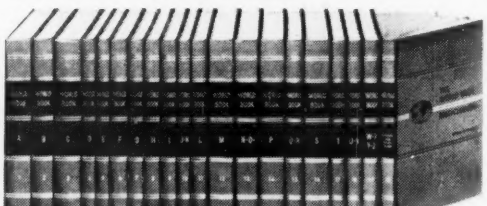

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sound, the background material extensive. The guide is replete with specific suggestions and many word lists. It should be very useful in helping children learn to read.

Madison (Wisconsin) Public Schools. *Guide for Teaching Science, Kindergarten-Grade Six.* Madison: the Schools, Curriculum Department, 1960, 152 p. ($3.00)

A large curriculum committee used ideas from about 350 classroom teachers in the preparation of this bulletin. It offers a compact course of study for seven grade levels and is organized around: (a) concepts to be developed, (b) expectancies and suggested problems, (c) suggested activities and correlated experiences and (d) resource helps. General statements of purpose, method and evaluation appear in the introduction. The sections that follow are in different colors, making an attractive and functionally useful guide. In the hands of creative teachers, the bulletin allows for a great deal of flexibility.

Los Angeles City Schools. *Instructional Guide: Mexico* (Social Studies Grade Six). Los Angeles: the Schools, Division of Instructional Services, Publication No. EC-202, 1959. 240 p.

Resourceful teachers will find in this guide much help in teaching and learning about Mexico. Authenticity and accuracy of information were assured by the cooperation of diplomatic and government agencies, both American and Mexican, particularly the Mexican Consulate General.

As indicated in the foreword, "The publication suggests learning experiences, materials and ideas which will help the teacher to plan with the children a program which will lead to an understanding and appreciation of the people of Mexico as well as of the social, economic and cultural background of the large segment of our population which is of Mexican-American ancestry." This it does with thoroughness and with sensitivity for human factors. The bulletin is very well organized, attractively presented, and easy to use.

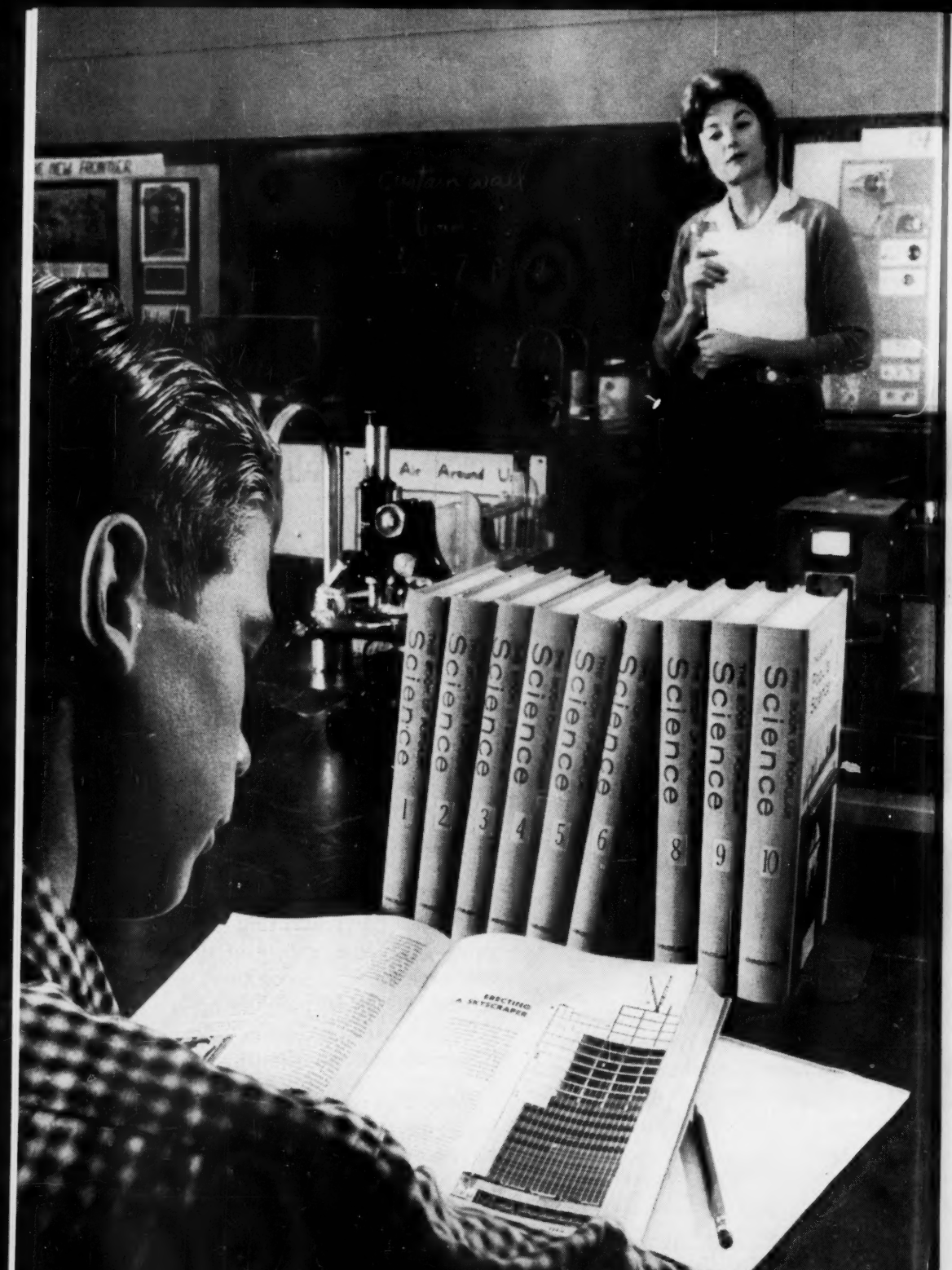
Colorado State Department of Education. *Kindergarten Guidebook.* Denver: the Department, Office of Instructional Services, 1960. 170 p. ($1.25)

Many teachers and many committees worked with consultants or representatives from the United States Office of Education, the State Department of Education and state branches of the Association for Childhood Education International to produce an excellent guide for kindergarten experiences. Careful consideration was given to the nature of the child, the qualities of good teachers, the learning environment, and the daily schedule. Curriculum areas are treated comprehensively under two large divisions: the natural and social sciences and the creative arts.

This is a bulletin of high quality. The format is interesting, the organization is clear and the scholarship sound. The guide contains a variety of suggestions for experiences, procedures and resources. It should prove of great value to kindergarten teachers in Colorado and highly suggestive to those in other states.

Note: The column editor was assisted in the appraisal of some of the bulletins by various colleagues at Indiana University: A. L. Butler in kindergarten, Maxine Dunfee in elementary science and social studies, and Leo Fay in reading.

—Arthur Hoppe, *Associate Professor of Education, Indiana University.*



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American Government: The Clash of Issues. ***James A. Burkhart, Henry C. Bush, Samuel Krislov and Raymond L. Lee.*** *Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1960.*

This book represents a new and bold approach to the study of civics. Those who like their civics textbooks to be organized along traditional lines of presentation based on the description of the structure and the functioning of branches of federal and local governments, will find it difficult to use this textbook, which is organized topically and presents issues and problems in the workings of American democracy.

The authors are quite aware of the boredom of the structured, descriptive teaching of civics which goes on in many high schools. They suggest that, instead, the American government and the functioning of our democratic process could be made more meaningful to students if presented in the form of a discussion of different points of view on topics such as: "States' Rights and the Constitution," "Civil Liberties—How Free Can We Be and Still Be Safe?" "The Presidency—The Hardest Job in the World?" "Congress—Does It Lead Us?" "Big Business and Politics, Big Labor and Politics." Problems presented are in the form of contributions by leading American and foreign scholars and leaders in their several fields.

The problems presented are genuine and have relevance to contemporary political, economic and social life. There is no effort to equivocate or soft-pedal controversial issues. The authors correctly assume that our youth is ready, eager and able, when taught by a competent and scholarly teacher, to deal intelligently with problems involved in the never-ending process of improving our democratic way of life. They frankly aim to teach, in the only way effective teaching can truly be attained, by challenging the student to think critically about the issues presented and to weigh carefully divergent approaches and points of view, and then allow him to make his own formulations and syntheses.

The authors are scrupulously objective in their selection of contributions on different topics. Thus in discussing "The Government and Welfare," the textbook includes contributions by J. K. Galbraith and Samuel B. Pettengill. Likewise in presenting the issue of a federally supported health insurance, the text carefully presents two opposing views both written by outstanding physicians.

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Civics and social studies teachers who have been searching for a textbook or supplementary text which would give them an opportunity for creative and challenging instruction would do well to turn to this volume.

—*Reviewed by* MARK M. KRUG, *Assistant Professor of Education in History, University of Chicago, Illinois.*

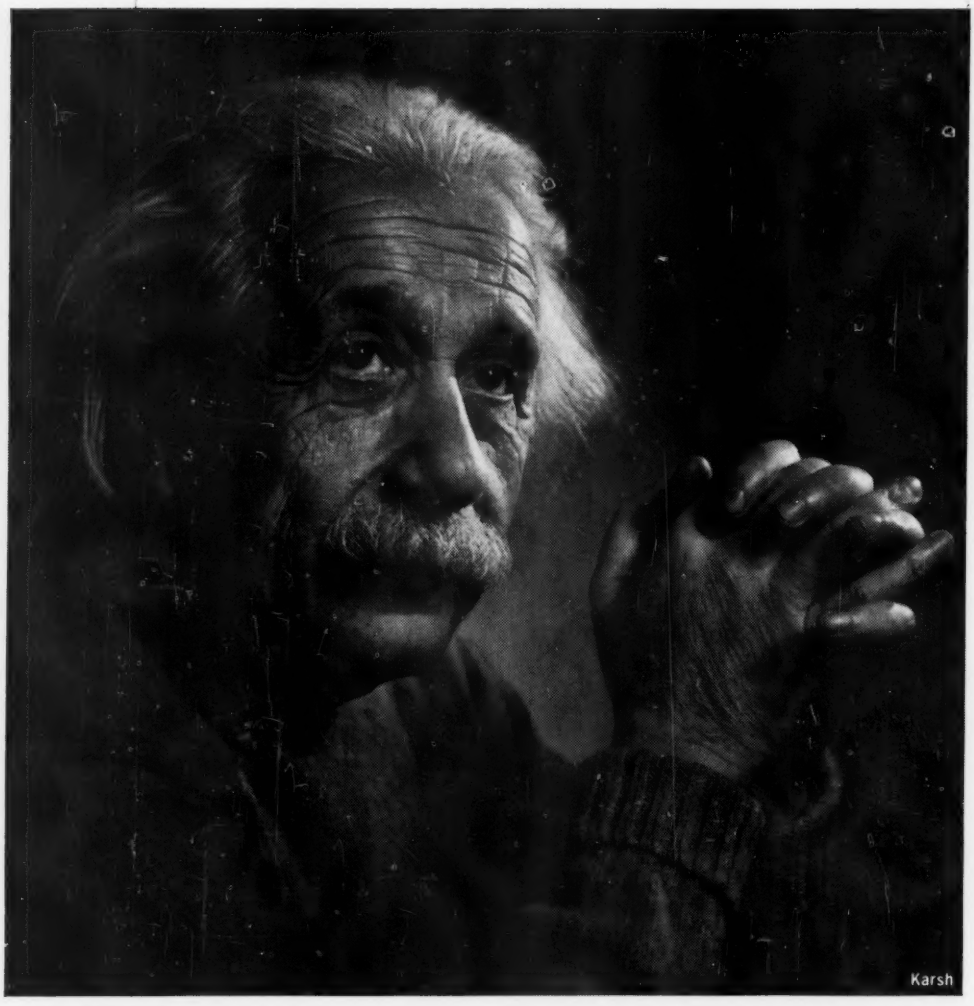
Education for Effective Thinking: An Introductory Text. *William H. Burton and others.* *New York: Appleton-Century-Crofts, 1960. 508 p.*

Burton, Kimball and Wing assume that the school has a role in the development of experiences through which an individual may control, analyze or test his own thinking. In this book, they address themselves to the important task of defining that role. The authors' strategy is to reach teachers and thus effect a change in style and content of teaching. The authors' purpose is to present a text for prospective teachers from which they will gain an appreciation for both logical structure and psychological processes of effective thinking. The text is intended primarily for use in methods and curriculum materials courses, although it might also be used supplementary to texts in educational psychology.

The volume's 21 chapters are grouped into three sections on the general subject of thinking: its definition, its organization and dynamics, and its planned development in children through the curricular content of the various subject-matter areas. The last chapter is devoted to a review of the published tests of critical thinking and a discussion of informal evaluation techniques.

The organized progression of an abstract description of what constitutes thinking, leading to process and then to application in subject-matter fields is smooth except for an interruption by two chapters which review the empirical research on factors affecting, and method of teaching, critical thinking. While these two chapters are among the most readable of the book, their content is (a) isolated and almost totally ignored in previous and subsequent chapters, and (b) extremely one-sided with regard to the question of experimental *versus* clinical evidence on thought processes. Evidence and theory emanating from clinical experience with children and adults whose thinking is upset by emotional intrusions are entirely omitted from these chapters.

Because thinking is such a broad topic, it is difficult indeed to attempt to write an introductory text which will treat the subject adequately. *A focus on particular aspects of thinking* is necessary to avoid a diffuseness of treatment antithetical to successful communication. This, in the opinion of the reviewer, is the first requirement which any discussion of thinking must meet. It is not met by the authors of this volume, in spite of their attempt to narrow their focus to "effective" or "critical" thinking. In addition to chapters reviewing empirical research, chapters on applications to the fields of social studies, mathematics, language arts, and science,



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on their concept of critical thinking and a review of instruments and techniques of evaluating critical thinking, the authors present extended discussions of inductive and deductive reasoning, and psychological processes involved in problem solving and concept formation. While one may sympathize with the authors' feeling that a need for authoritative treatment of each of these areas of inquiry exists, it is apparent that such cannot be, or at least has not been, provided within a volume of 500 pages.

Because thinking about "thinking" becomes increasingly abstract as one becomes immersed in the process, analysis of the process itself soon ceases to be communicable unless conscious efforts are made by the thinker-about-thinking *to ground his communication about his subject in very concrete slices and sequences of the behavior he is labeling "thinking."* The authors' handling of the conscious aspects of critical thinking is successfully done, in terms of this second requirement of behavioral specificity.

A third requirement which any discussion of thinking should meet may be stated thus: Because thinking, like all behavior, is subject to the behaver's motives, *any application of thinking must take into account the sources and development of motives leading to or from the aspect of thinking under consideration,* particularly if the explication is to serve the purpose of developing habits of thinking. In the absence of such an explication, any consideration of how one develops critical thinking is impossible. The authors provide their consideration of motivation in Chapter 2, "A General Description of the Thinking Processes," and Chapter 3, "The Development of Attitudes Favorable to Thinking."

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Memory, imagination, believing, intuition, and insight, along with percepts and concepts, do not constitute thinking itself as the authors wish to define it, but rather the materials *used by* thought—that is, consciously controlled and critical thought. The conception that thought itself, along with the materials of thought, is closely controlled and directed by a more basic and usually unrecognized motivational network rather than by "an urge to base thinking and action on knowledge which . . . [is] . . . reliable" or by an outside world of obvious reality poses some difficulty for the authors. Just how thinking is an agent which uses, rather than a resource which is itself used, by the individual, is not clearly elaborated.

There is a clear implication that the world of reality is not only independent but that it acts directly upon the normal person's senses without any screening or distortion by personal, "subjective" factors. If only "genuinely stupid" persons act in defiance of reality, then normal, non-stupid persons act in consonance with reality with little or no influence from subjective factors.

Evidence from both experimental and clinical psychology is overwhelmingly in opposition to the view that the "normal" person's thinking is essentially rational or reality-oriented. Briefly, the evidence points to a view that, while man often and perhaps even usually may appear to be acting or thinking in consonance with reality, without influence from subjective motives, upon more comprehensive observation he is still seen as being very much directed by subjective motives but that these motives are presently demanding (some say allowing) reality-centered thinking. But if that motivational structure changes in certain respects, the objective world appears to lose its hold on his thinking. Actually it never had any hold not demanded (or allowed) by the "subjective" factors.

It is the writer's belief that the volume under review could, with much selection, form the basis for an extremely stimulating workbook for a curriculum materials course in social studies, and possibly other areas of the curriculum as well.

The first chapter, if combined with the exercises at the end of Chapter 5 and some of the materials of Chapter 18, on social studies, could be very useful in this regard. It is possible that other, more focused and more practical materials could be made available in this way, avoiding the diffuseness and consequent superficiality which attend the volume as it stands.

—*Reviewed by* FREDERICK F. LIGHTHALL, *Assistant Professor of Education, University of Chicago, Illinois.*

Educational Research for Classroom Teachers. *John B. Barnes.* *New York: G. P. Putnam's Sons, 1960.*

The author calls on the classroom teacher to concern himself with teaching that is research-oriented. In very readable style this short volume points out the teacher's obligation to carry on research in the classroom. It also presents simple, yet basic, methods of research and many practical suggestions for its conduct. Teachers continue to face questions as to "what to teach" and "how to teach." The teacher (or administrator) who succeeds in uniting teaching and research will deepen his appreciation of the educative process and will become more aware of his own value to the profession.

This book begins with a brief, concise history of American educational re-

search, which is followed by an expansion on modern educational research, its definitions, types and methods. The author discusses three basic methods of educational research: historical, descriptive, and experimental. He points out a weakness in the historical method when it lacks direct, firsthand contact with the subject. The educational researcher then needs to turn to reliable, supportive materials including official documents, records of meetings, and reports of research studies. The descriptive method attempts to describe the current status of a given situation. It is a kind of inventory assessment. In the experimental method, attempts are made to examine the impact that one or several variables will have when all other components are held constant. Mr. Barnes warns against considering merely trying new methods as synonymous with use of the experimental method.

He suggests some minimal considerations in the use of experimental methods of educational research:

1. The problem should arise from a considered intellectual curiosity.

2. The hypothesis or anticipated outcome should be clearly stated. Avoid "trying something to see what happens."

3. Identify as many variables as possible before actual experimentation begins.

4. Select an experimental design for the study which is practical in terms of classroom operations.

5. Employ the most valid and reliable measuring devices at your disposal.

6. Plan for other participants and observers to share in the project. Shun urges to "go it alone."

7. Plan the experiment so that it can be as faithfully and accurately reproduced as possible. (p. 46-47)

A major portion of the book is given over to five case studies. Each study was an educational research project carried on by regular classroom teachers. These are not ideal studies. They are not models. They are actual situations. The author calls upon the reader purposely to examine each case. The cases are open to criticism. The reasons for presenting such cases are fourfold:

1. To illustrate the naturalness of teacher problems

2. To suggest ways to approach such problems

3. To demonstrate specific research methods and techniques

4. To provide the raw material to stimulate the individual reader to analyze critically examples of teacher research. (p. 77)

The first case is a teacher's study of a child who entered school late. The second illustrates how one classroom teacher conducted an individual study of a boy labeled "discipline problem." The third is a descriptive study of a

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group of "rapid learners" in grades 11 and 12. The fourth is an experimental study of achievement of paired groups involved in two methods of grouping for committee work. The fifth study deals with an experiment in the teaching of reading in the fourth grade. Each case study has content which is of special interest, but each is more important for its research methods, examples of records kept, interviews, tables, and steps taken for controlled experiments in the conduct of the study.

In the appendices the author speaks directly to the administrator concerning his role in educational research. He discusses the value and the characteristics of a qualified consultant.

This book meets the in-service need of teachers who should be conducting action research. In summary, the author states that educational research should be a natural and rewarding concomitant to successful classroom teaching. This book, one in the Putnam Series in Education, deserves the attention of all interested in vitalizing the "what" and "how" of teaching through active research at the classroom level.

—*Reviewed by* ROY R. WILSON, *Research Associate in Education, University of Chicago, Illinois.*

Research Offers Leads

(Continued from page 413)

pupil-teacher planning and the development of differentiated approaches within a class. Block-time scheduling and core programs make this even more effective, as a teacher gets to know a group intimately. Ingenious schedules are being fashioned, to give more chance for enrichment and exploration. The NASSP's Commission on Staff Utilization is pushing the frontiers with respect to independent study, directly adapted to the individual; it is working toward a goal of 40 percent of a youngster's time to be so spent.

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Backing all these efforts are the burgeoning technological aids and physical plant inventions. In foreign language instruction, elaborate tape-recording systems make the new audio-lingual methods easy to use. Table-size projection equipment is available for individuals and small groups. Programmed instruction *via* scrambled book or teaching machine is increasingly able to offer specific work needed by individuals. Instructional materials in a bewildering wealth make differentiation easier. The whole conceptualization and design of school plant is in ferment, with a tremendous array of individual study cubicles and resources laboratories, and a general flexibility that makes adaptation to peculiar needs steadily easier.

Just where all this will go no one can possibly say until much bold and visionary experimentation is behind us. But the prospect is thrilling. The old, formal stratification and compartmentalization have not paid off. It is time to invest daringly in opening up the system, to exploit the possibilities that invention provides, and to go direct to the unique individual without first submerging him in a type.

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